

AD-A086 299

FLEET WEATHER FACILITY SUITLAND MD  
ANTARCTIC ICE CHARTS, 1977-1978. (U)  
1978

F/6 8/12

UNCLASSIFIED

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1 of 3

AD-A086 299





LEVEL

MR 5

80-18

(1)

# ANTARCTIC ICE CHARTS

1977-1978.



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Approved for public release  
Distribution Unlimited

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## FOREWARD

The U. S. Navy has a long and colorful history of polar exploration and currently is an active participant in the growing national activity in the Arctic and Antarctic. The strategic importance and increased demand for the natural resources of these areas has resulted in a greater requirement for environmental information.

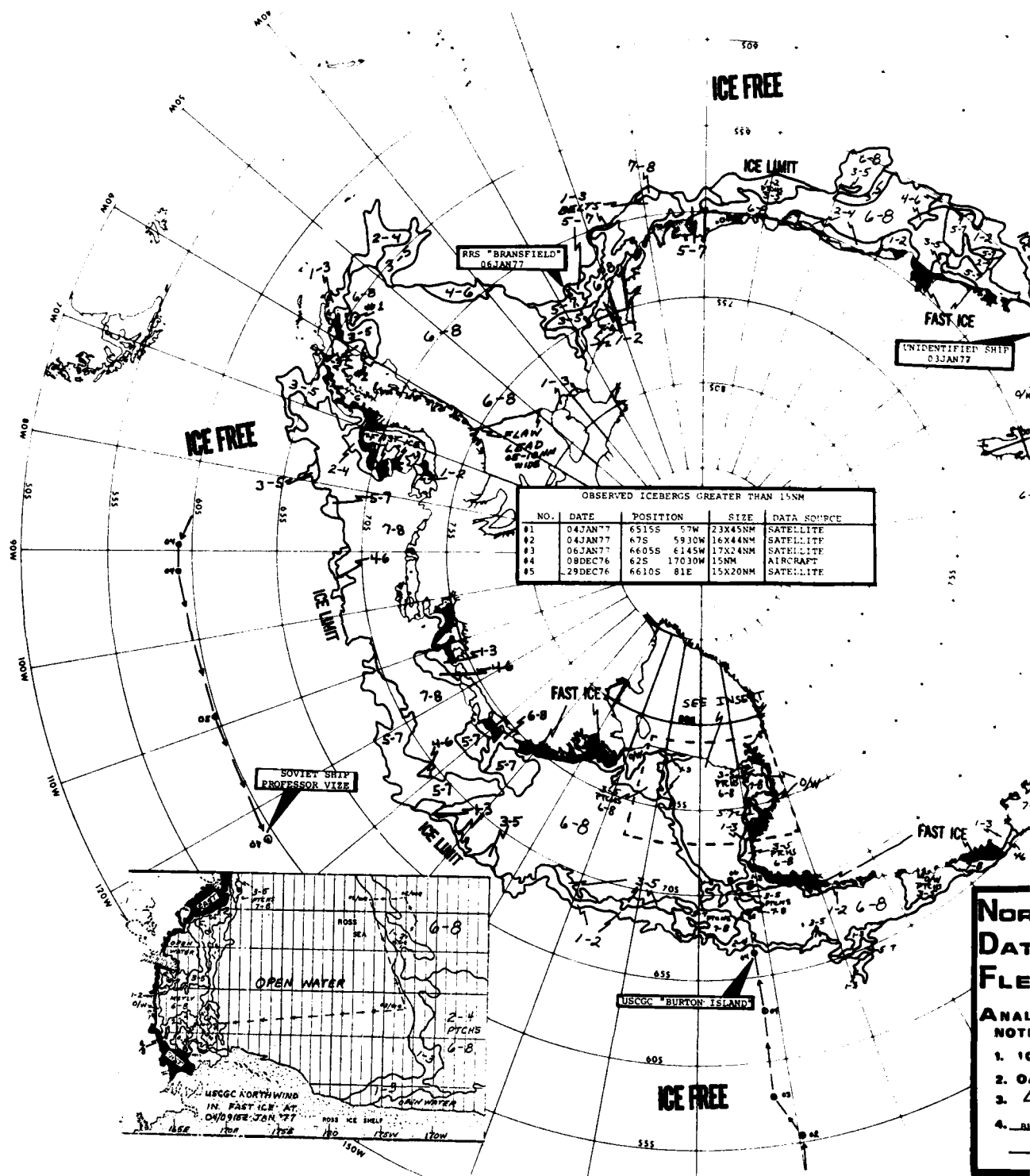
Until a few years ago, reliable sea ice information in the polar regions was based on a relatively few shore station and ship reports augmented by limited aerial reconnaissance data. These data were further restricted to the relatively small areas observed primarily during the ship operating season. The principal aim of this publication is to provide operators and researchers with historical weekly hemispheric analyses of sea ice conditions derived principally from satellite imagery supplemented by conventional observations.

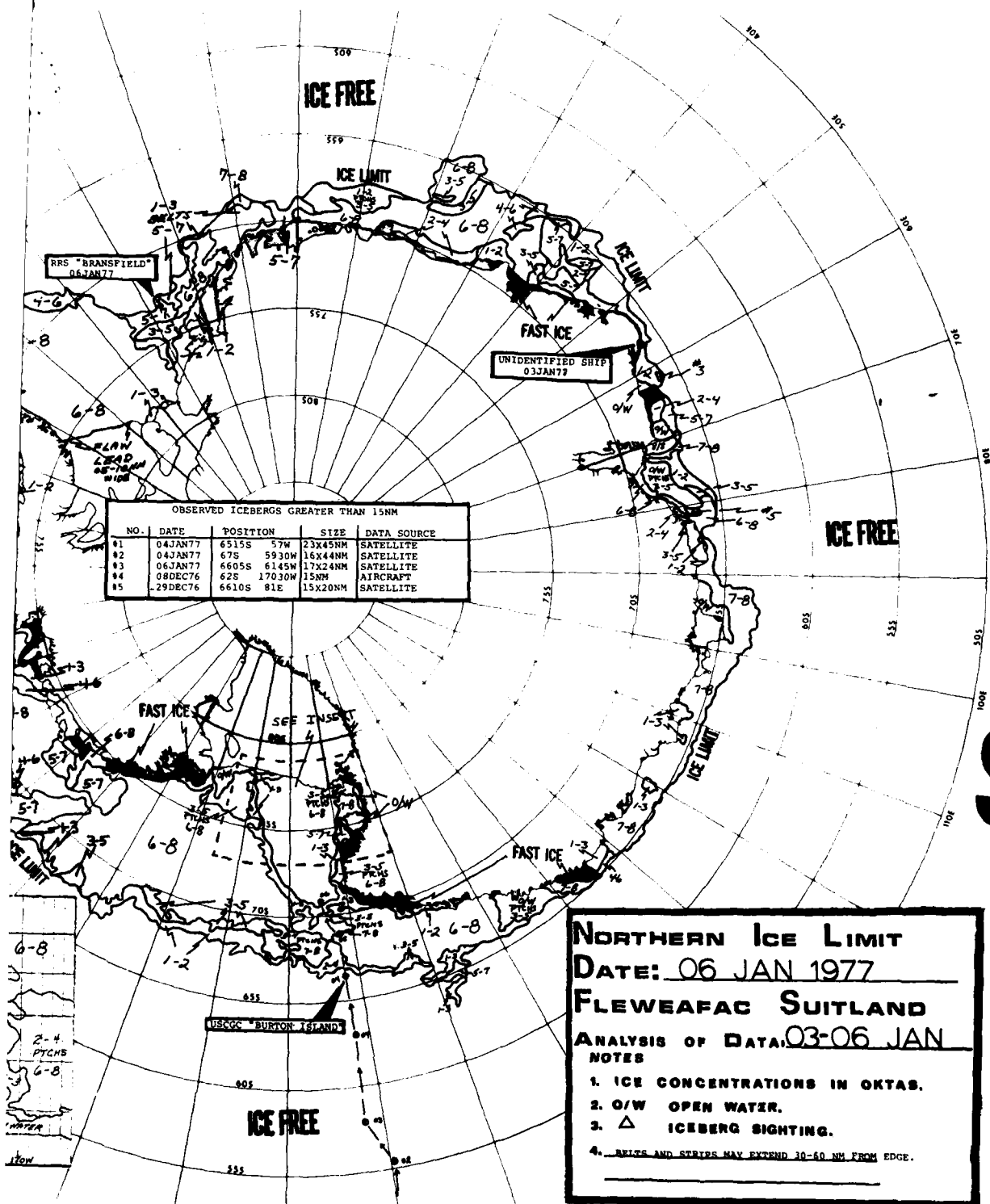
The advent of high resolution satellite imagery combined with the ground truth of conventional observations has in recent years provided description of the polar ice fields on a semi-synoptic scale. Since 1970, the Fleet Weather Facility at Suitland, Maryland has prepared operational analyses and forecasts of its conditions in the Arctic and Antarctic for the Department of Defense and various other users. The results of these efforts are contained herein.

The charts were constructed by Navy ice analysts under operational time constraints from satellite imagery and conventional data. Reanalysis with late data was not normally attempted; rather the current analysis was prepared incorporating this to the extent possible. The analysis was compared with available climatology in an attempt to eliminate gross errors. Scanning radiometer imagery, visual and infrared, from the National Oceanic and Atmospheric Administration (NOAA) satellites and microwave radiometer data from the NIMBUS V research satellite were the primary data sources. Limited use of the Earth Resources LANDSAT and Defense Meteorological Satellite Program (DMSP) imagery as well as conventional observations were utilized. The 19.35 GHz microwave radiometer with 25 kilometer (KM) resolution aboard NIMBUS V provided an ice edge and limited inner pack conditions. This was the basic data source during the polar night and over areas dominated by persistent cloud cover. During the seasons with adequate light, visual data from the Very High Resolution Radiometer (VHRR) with 1 KM resolution and the 4 KM resolution data from the Scanning Radiometer aboard NOAA satellites were utilized. Infrared radiometer data was of limited value primarily due to seasonally small water ice temperature differences.

The user of this publication is cautioned that the information presented reflects an initial effort prepared for operational use and should temper his application accordingly. Comments regarding any aspects of the analysis chart are welcomed.

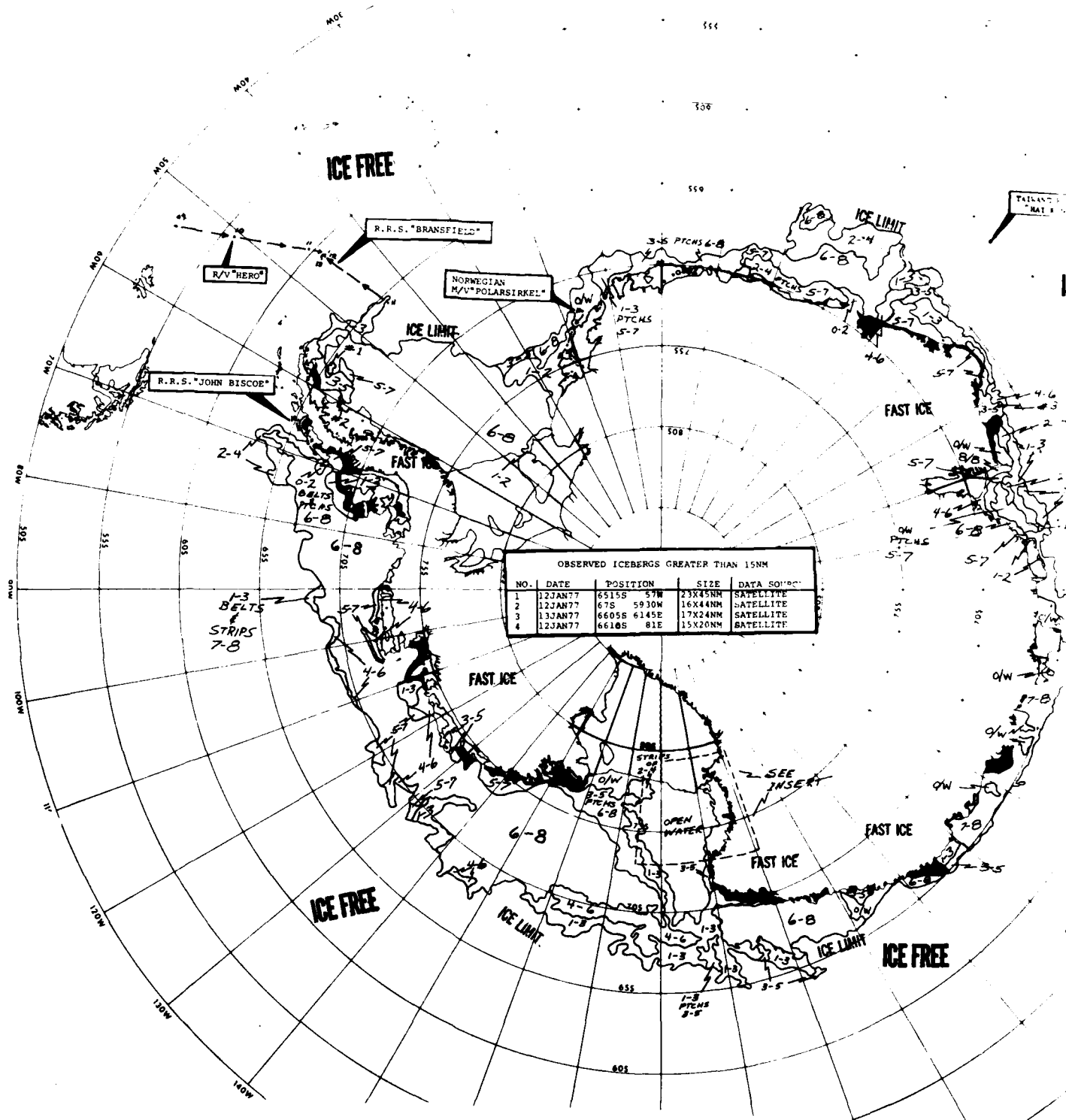


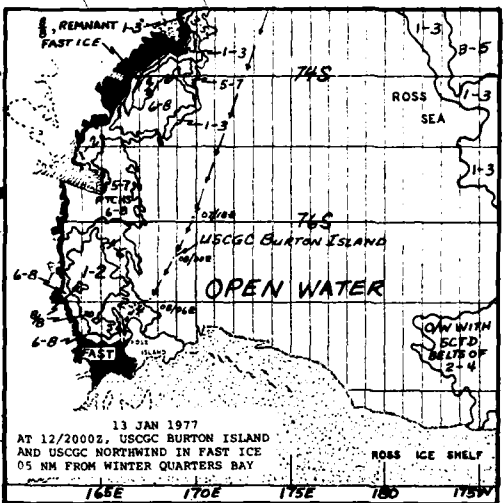
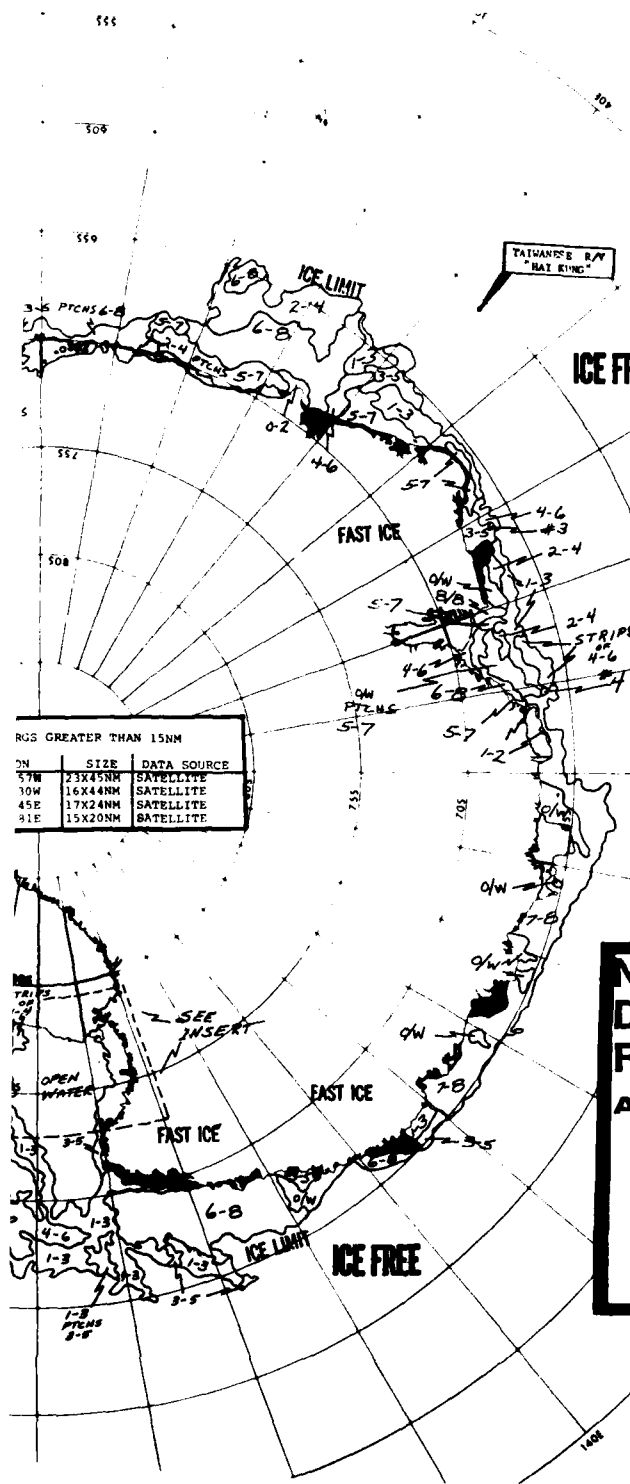




**DISTRIBUTION STATEMENT A**  
 Approved for public release;  
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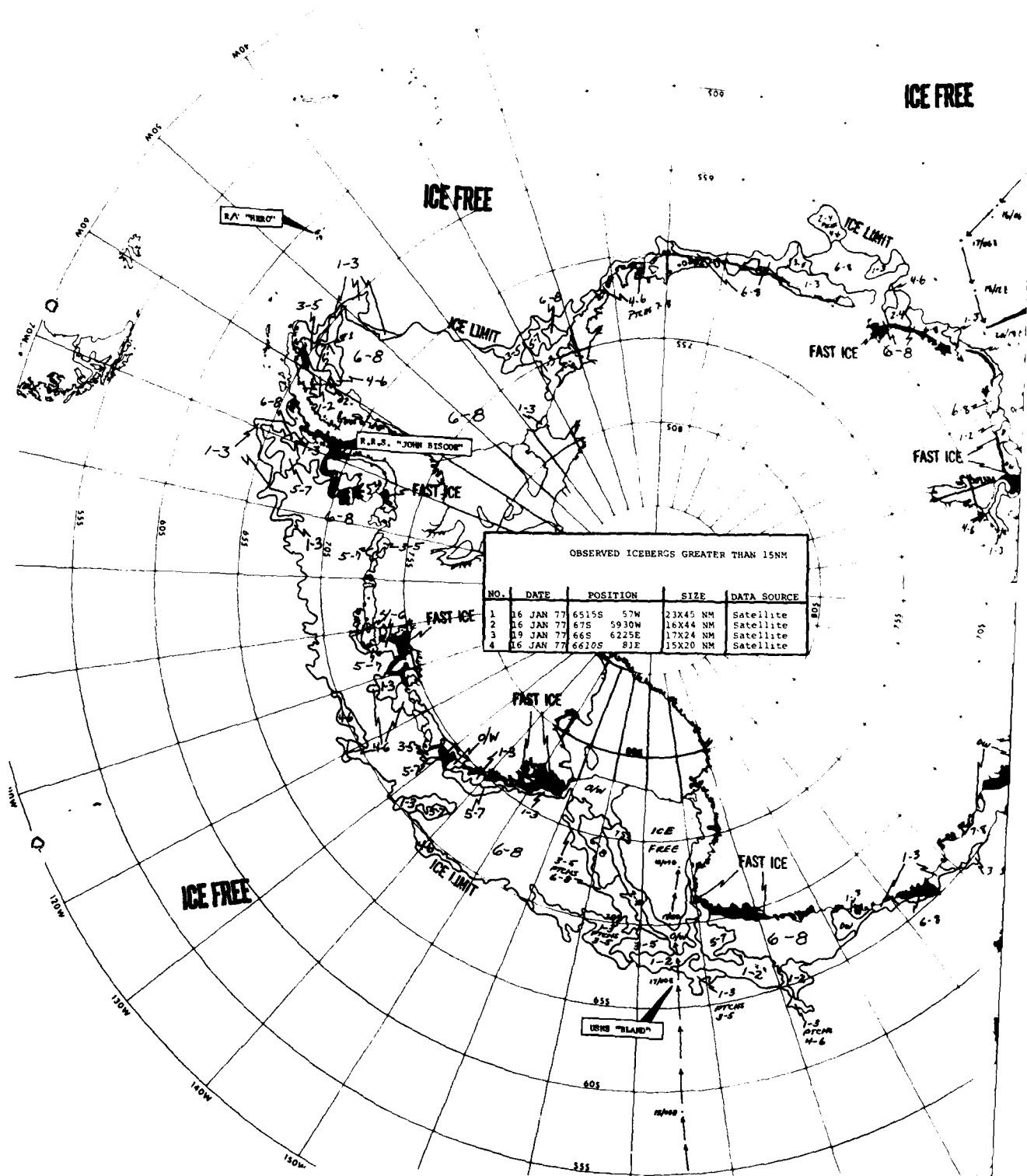


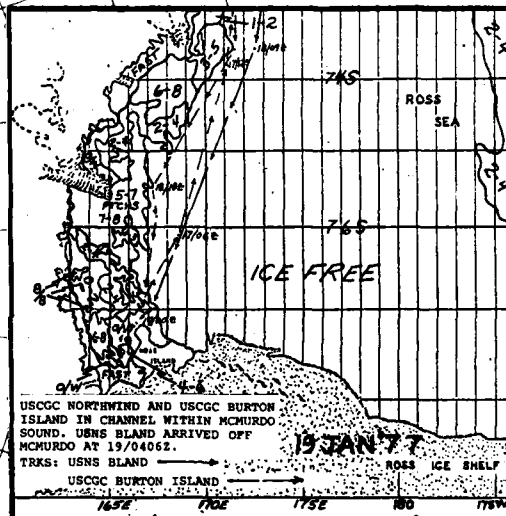
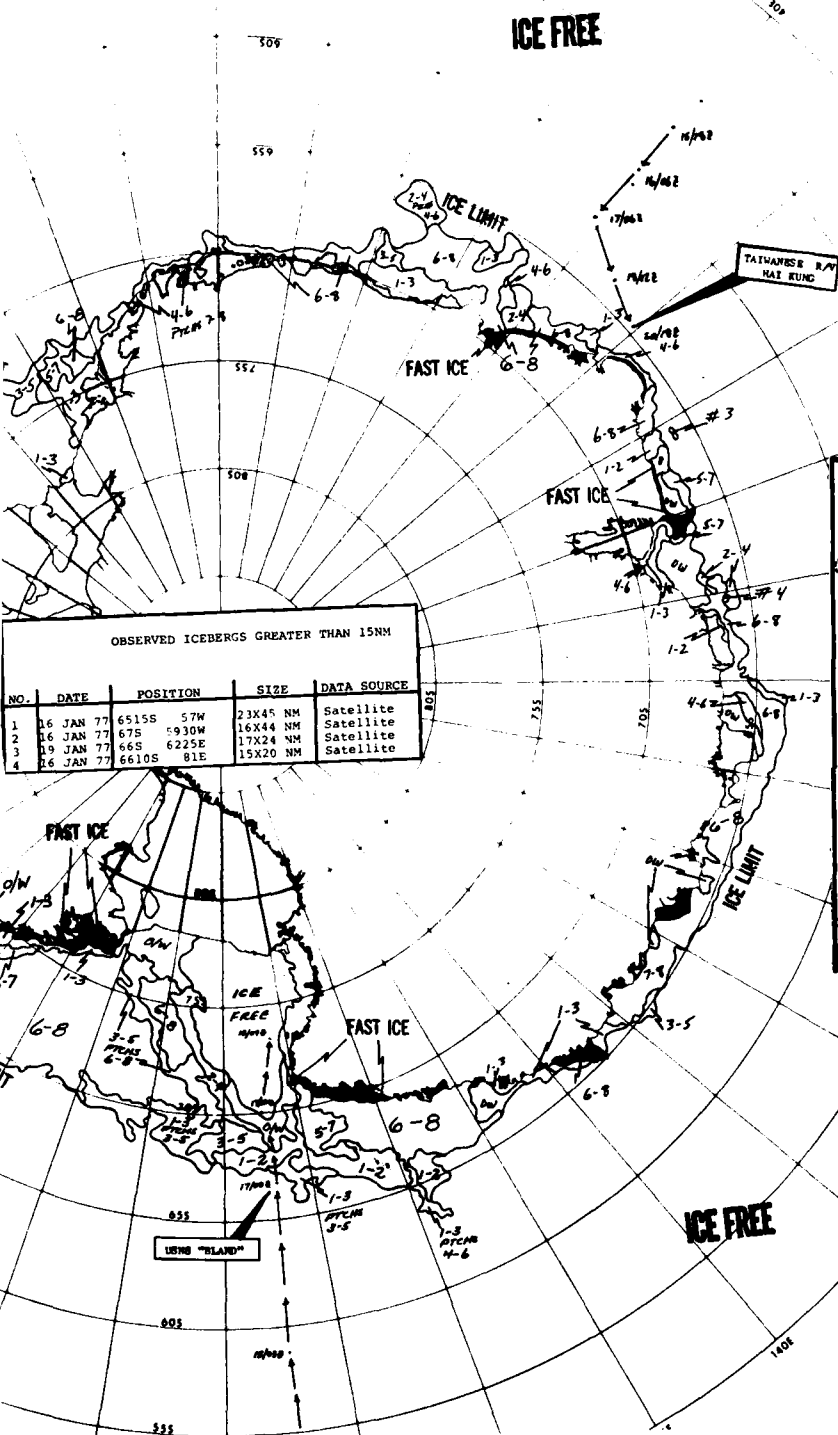


**NORTHERN ICE LIMIT**  
**DATE: 13 JAN 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 10-13 JAN**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2

2



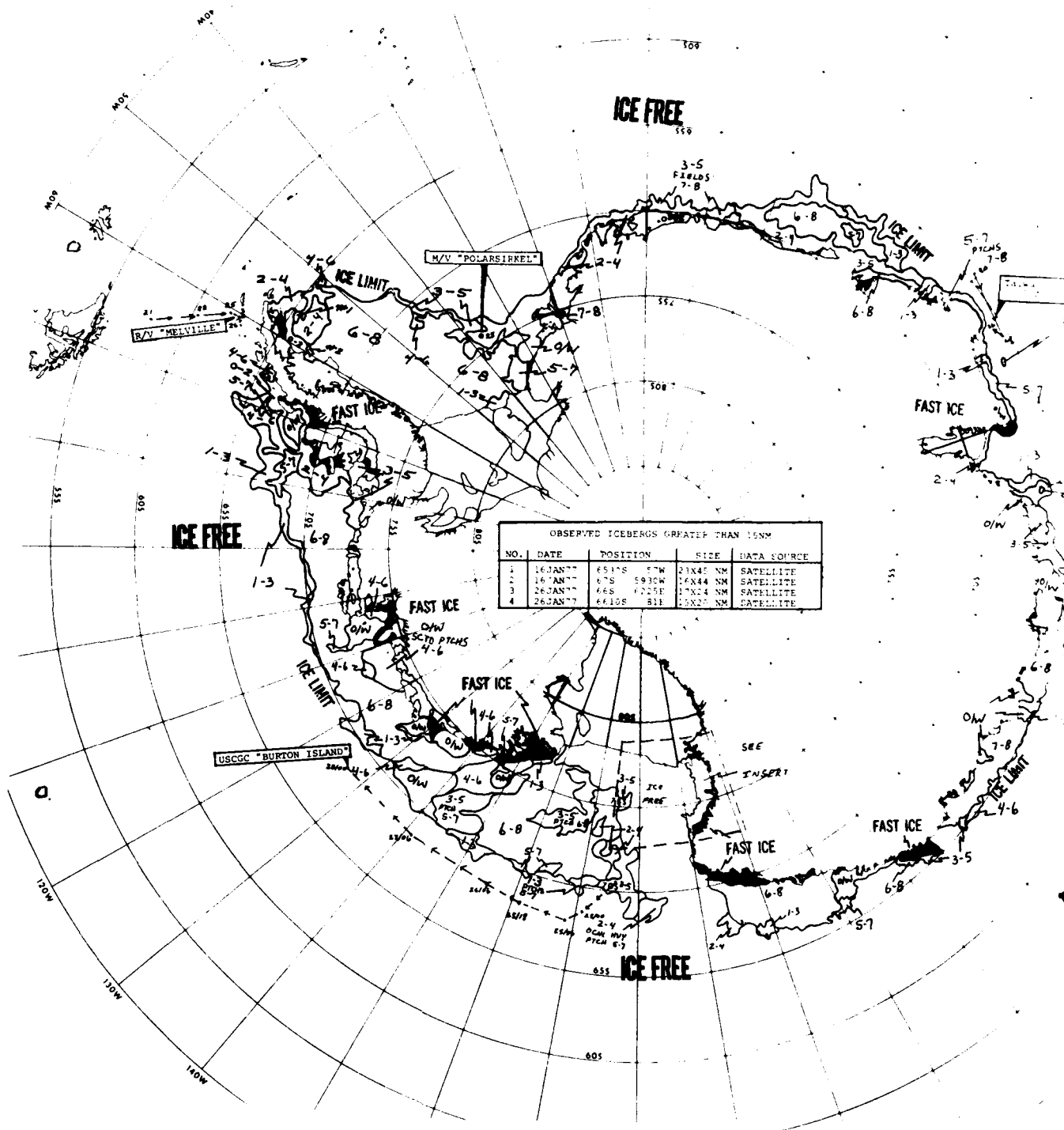


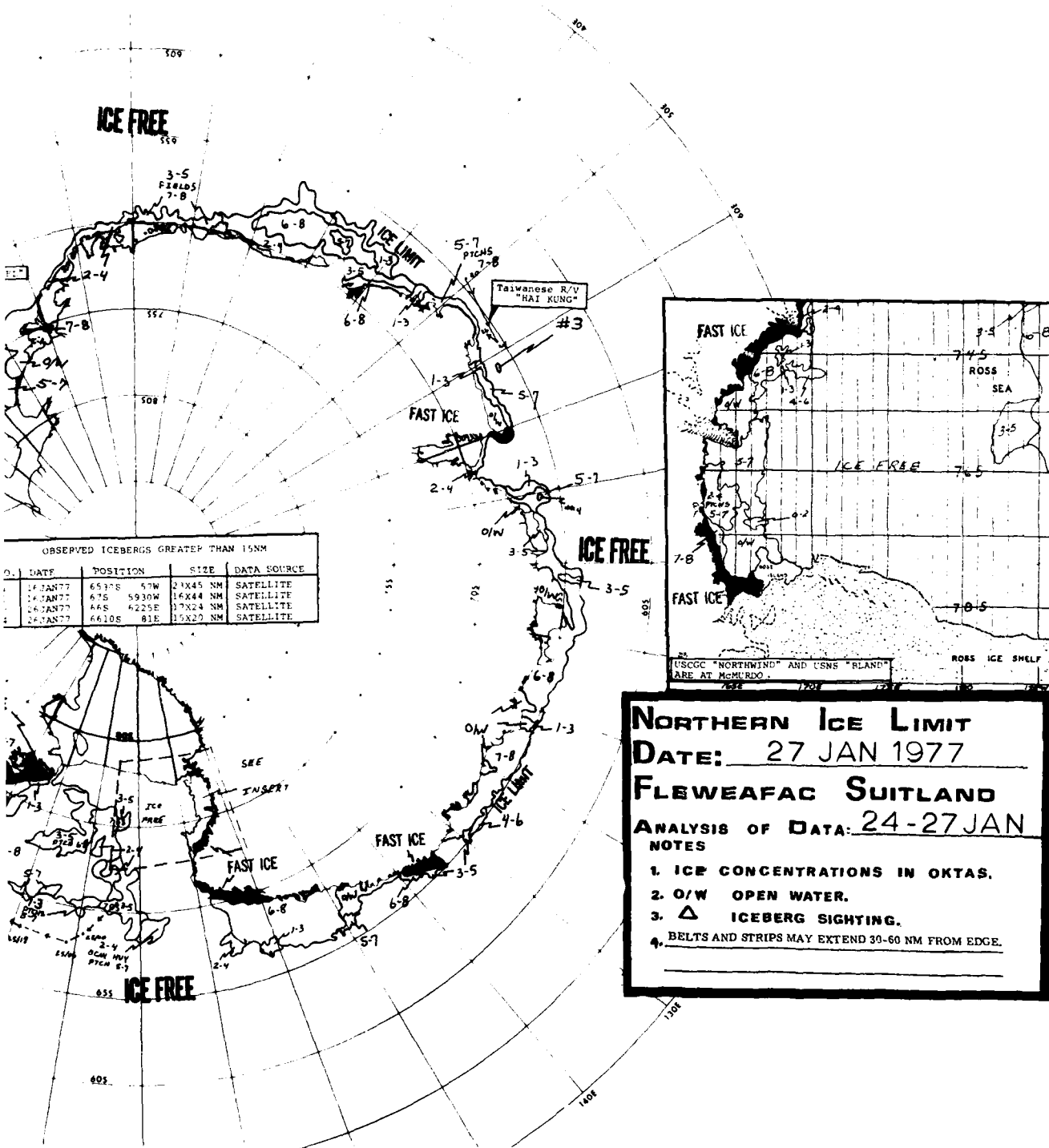
**NORTHERN ICE LIMIT**  
**DATE: 20 JAN 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 17-20 JAN**

**NOTES**

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

Accession For	
NTIC G.A.I	<input checked="" type="checkbox"/>
USCIS	<input type="checkbox"/>
Unprocessed	<input type="checkbox"/>
Classification	<input type="checkbox"/>
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<i>A</i>	





OBSERVED ICEBERGS GREATER THAN 15NM

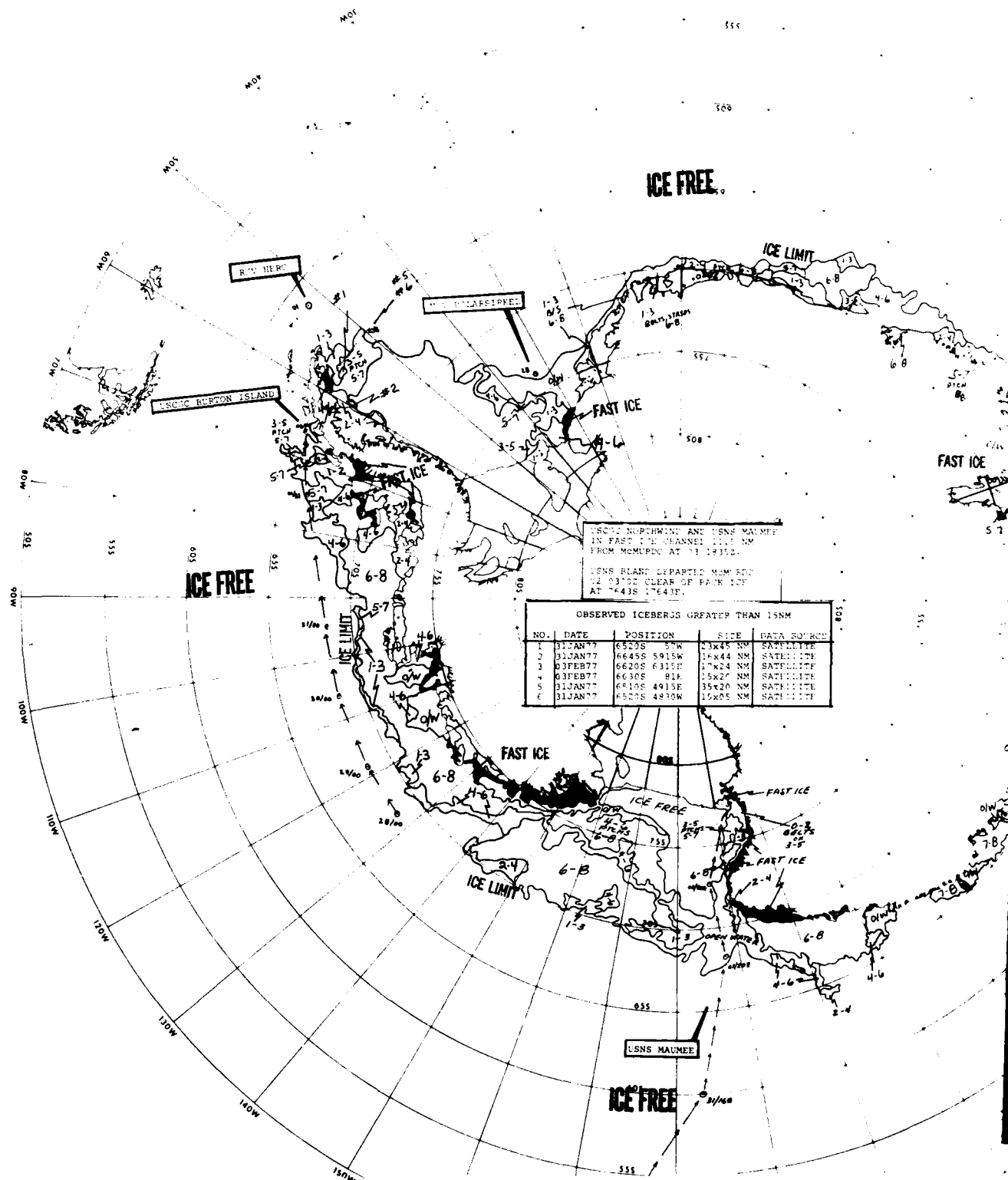
DATE	POSITION	SIZE	DATA SOURCE
14 JAN 77	65°18' S 57°W	21X45 NM	SATELLITE
14 JAN 77	67°S 59°30'W	14X44 NM	SATELLITE
16 JAN 77	66°S 42°25'E	17X24 NM	SATELLITE
24 JAN 77	66°10'S 81°E	15X20 NM	SATELLITE

**NORTHERN ICE LIMIT**  
**DATE:** 27 JAN 1977  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA:** 24-27 JAN

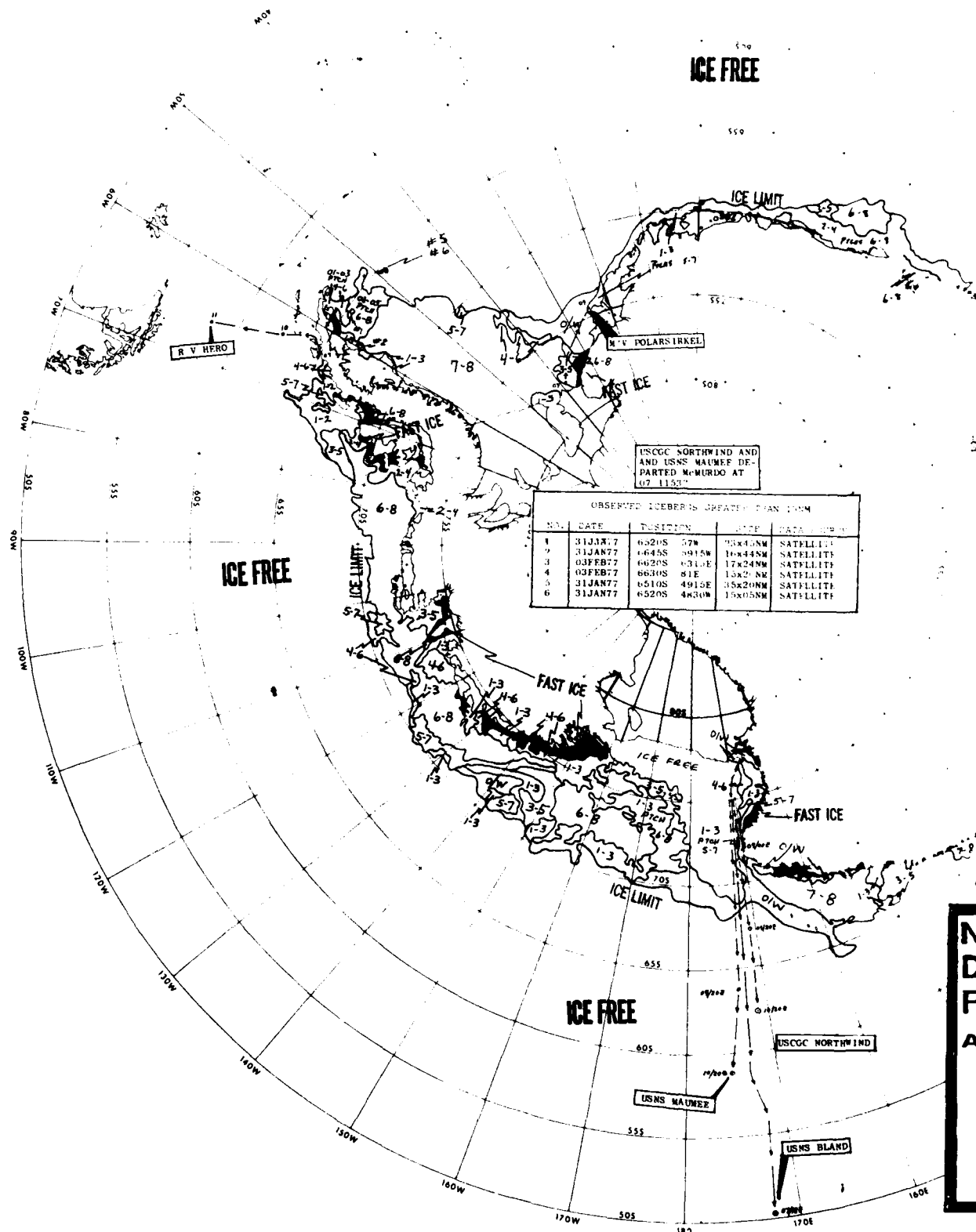
**NOTES**

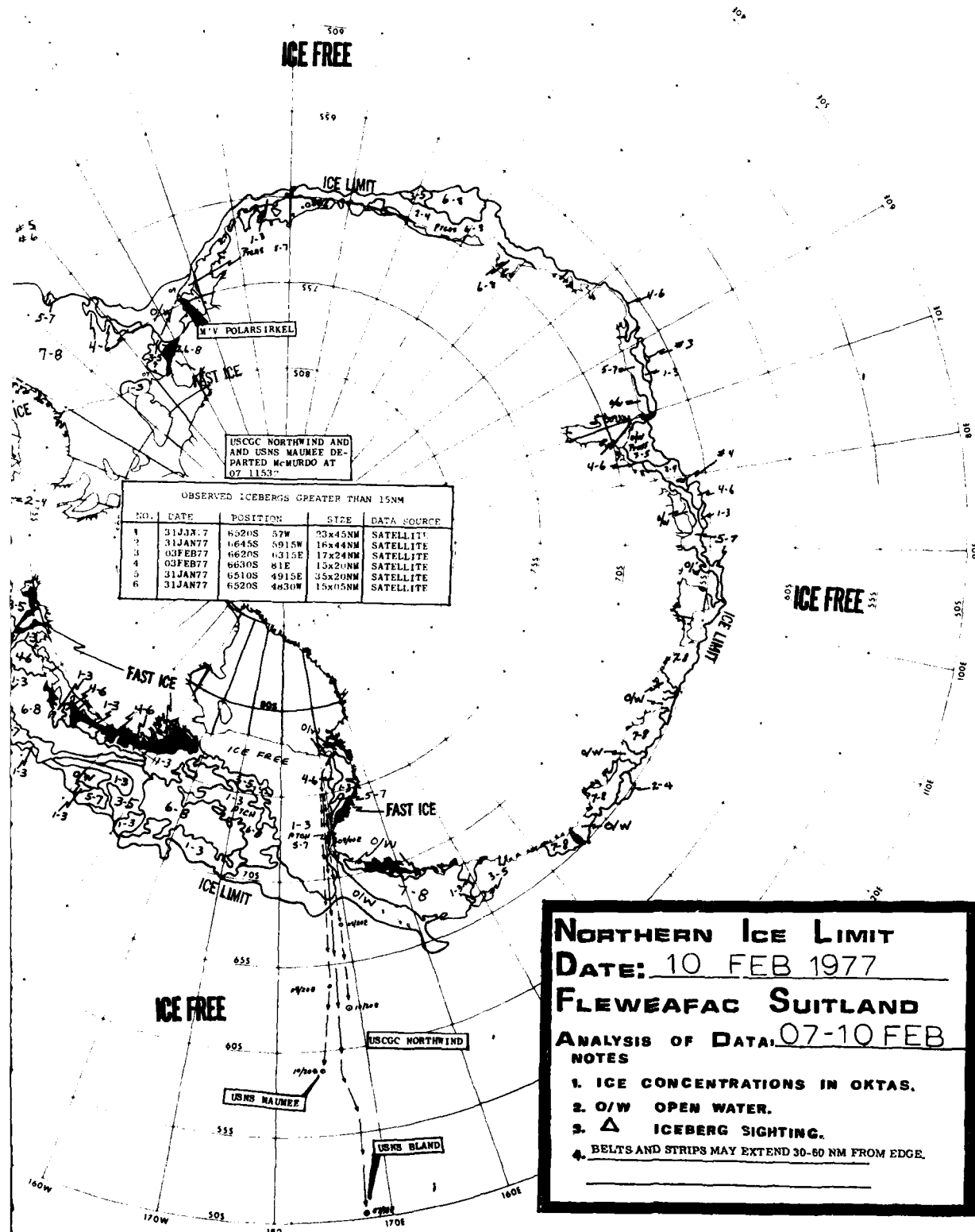
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3. Δ ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.



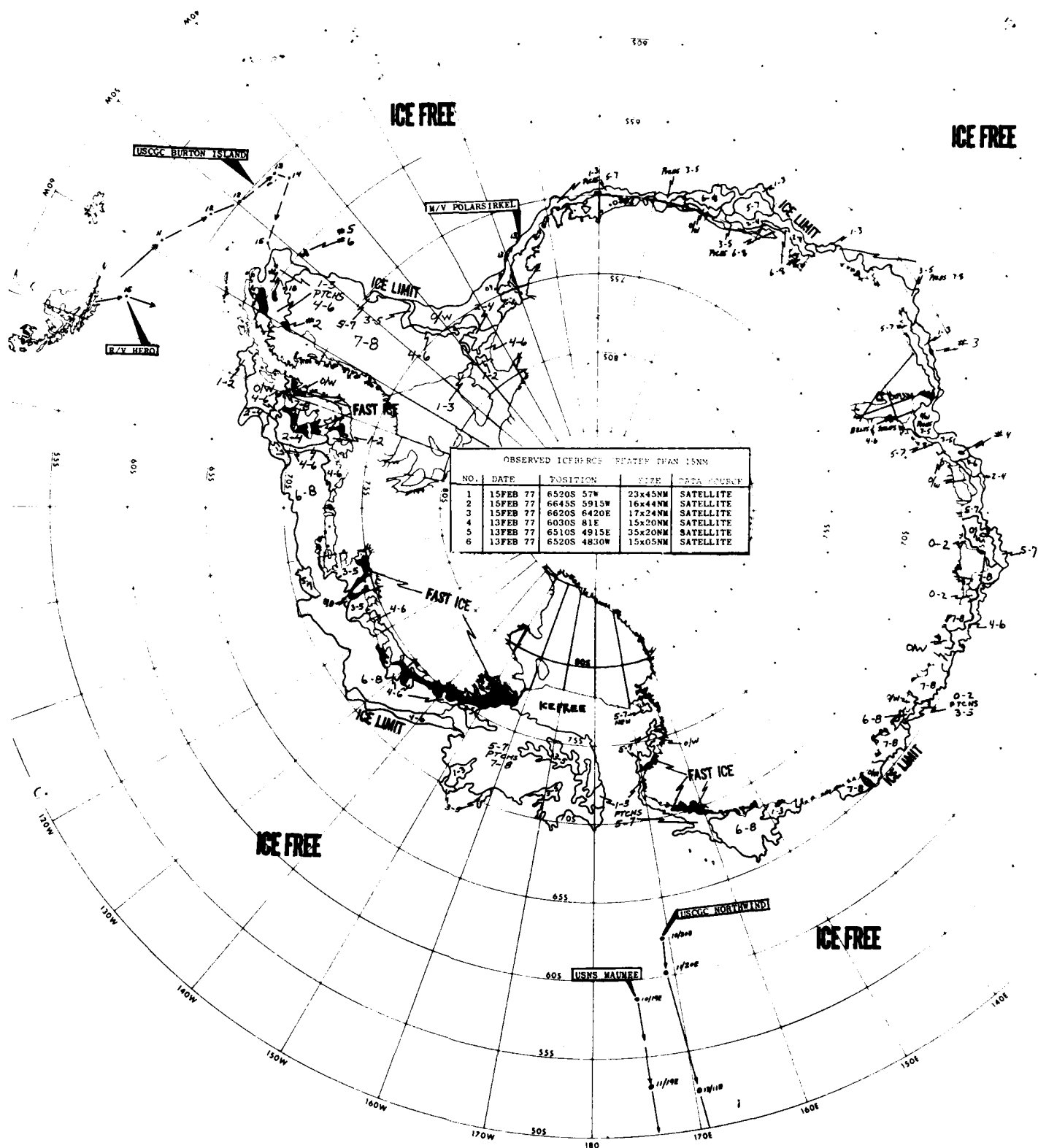


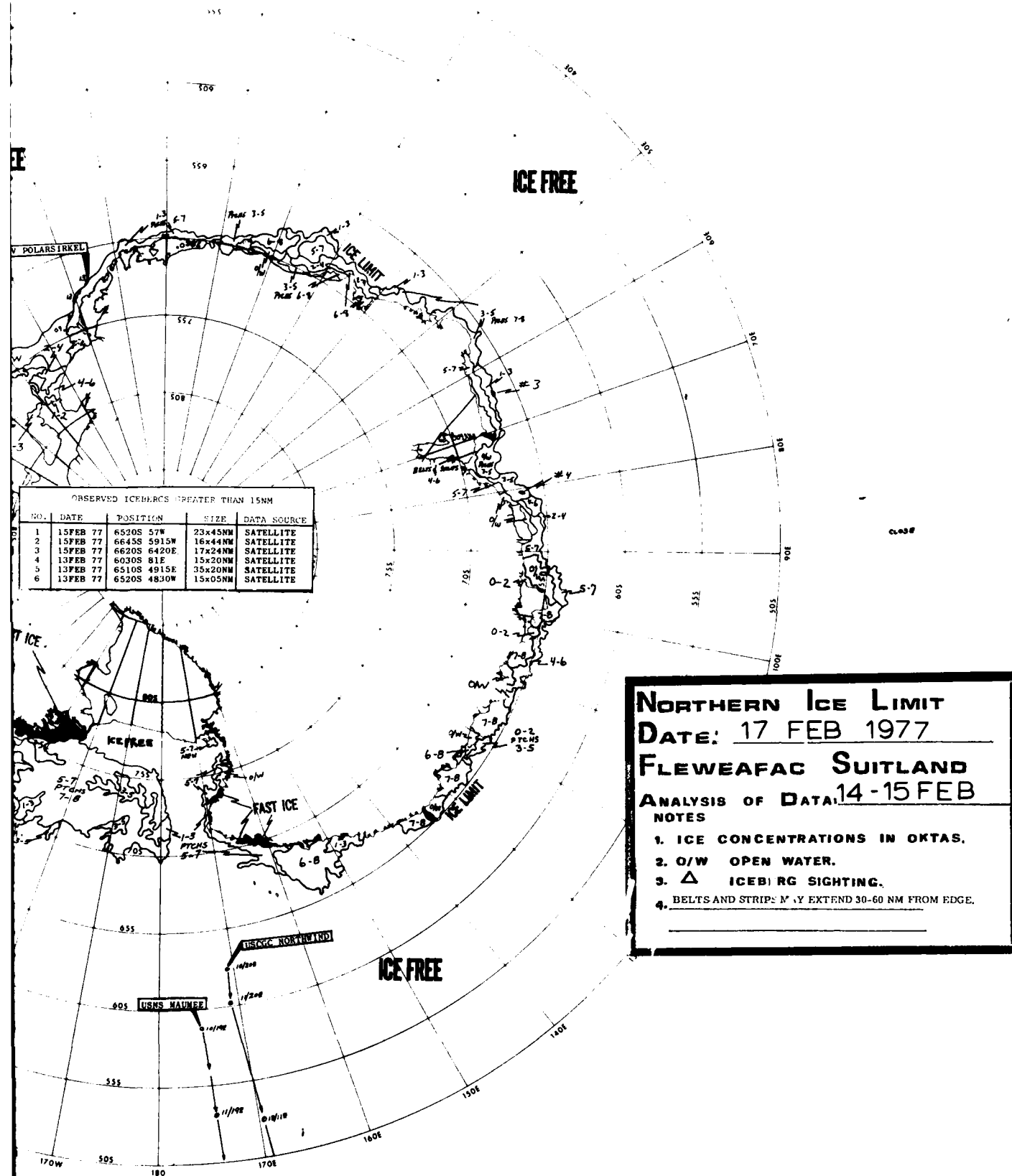


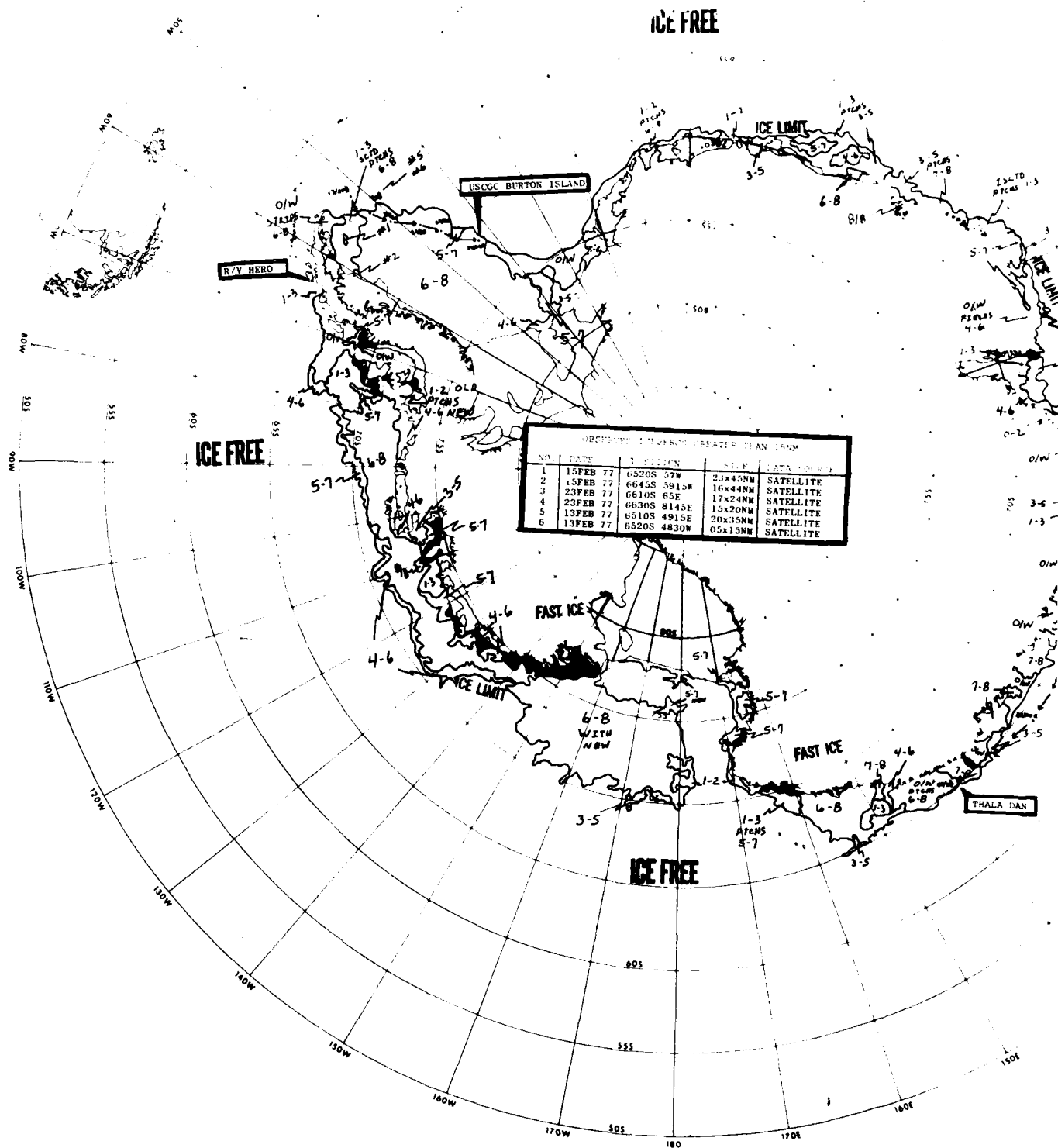




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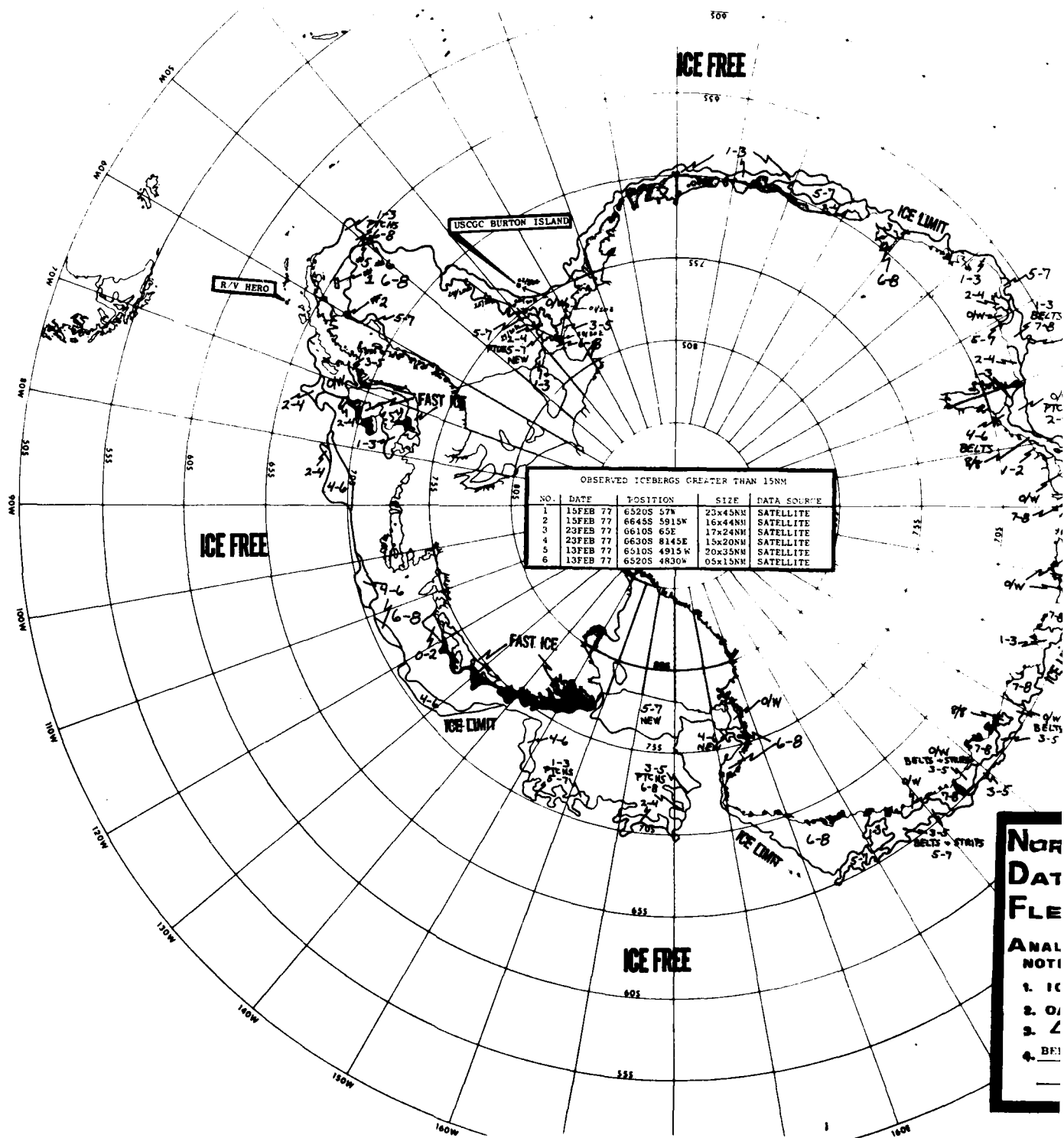




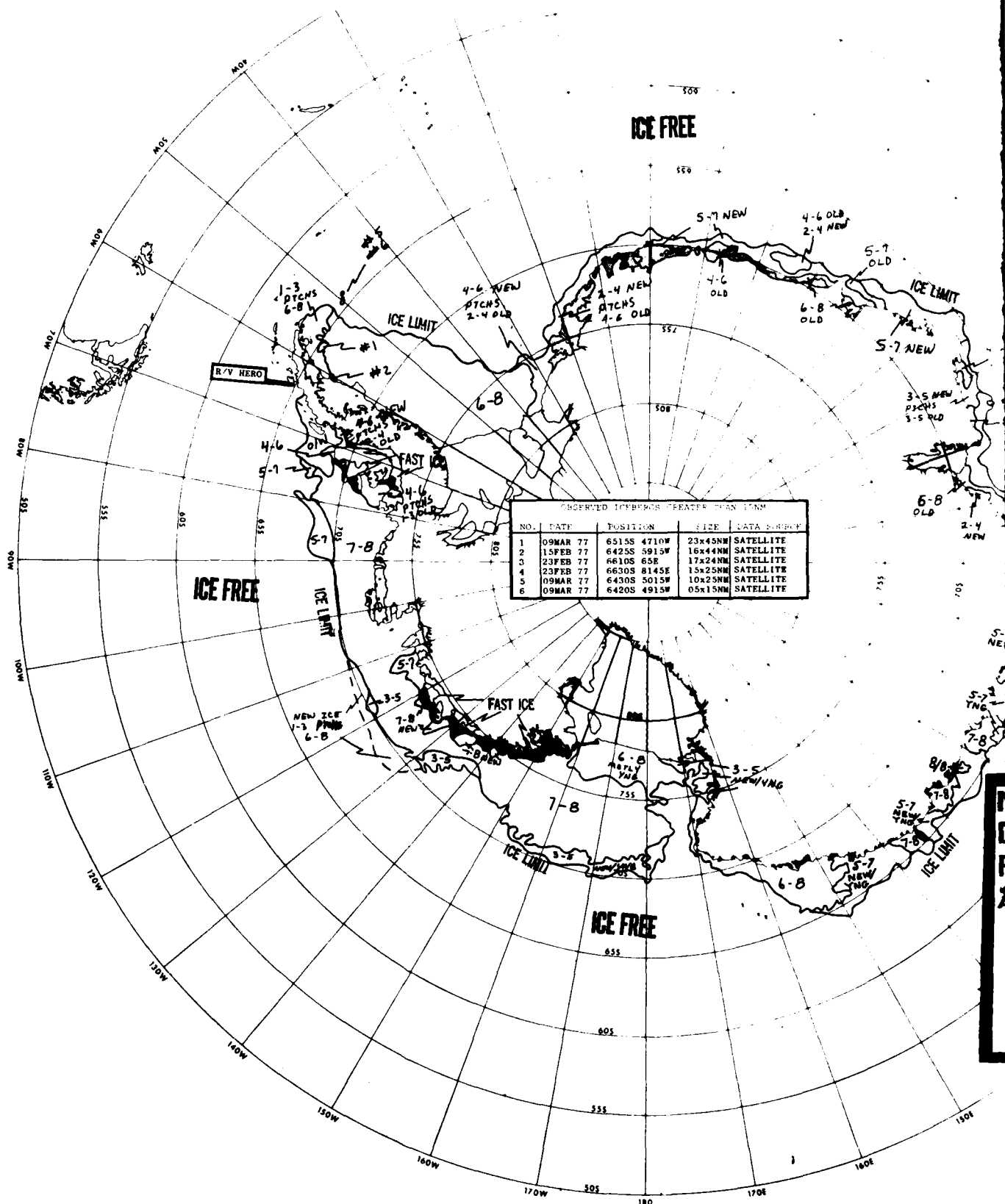




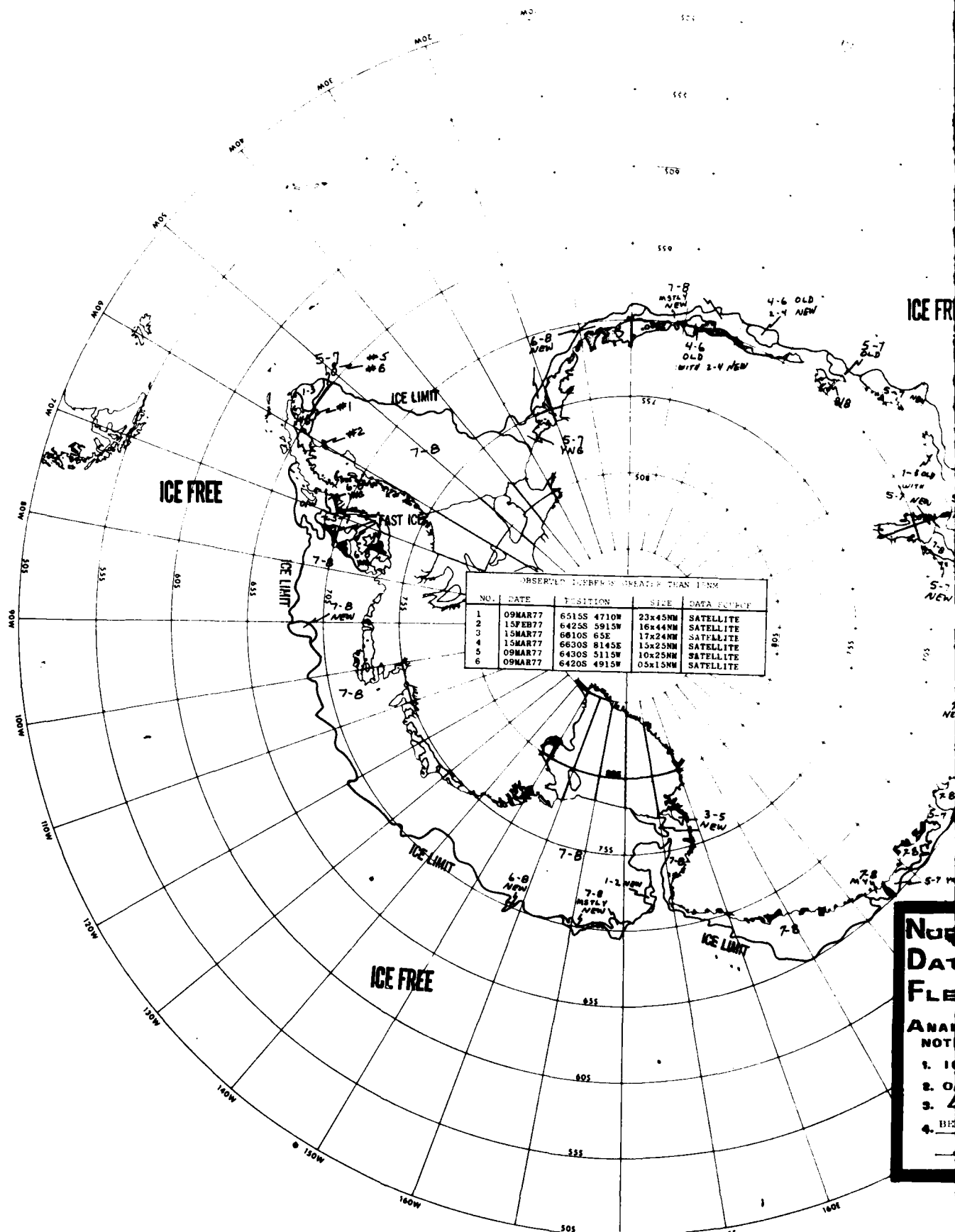


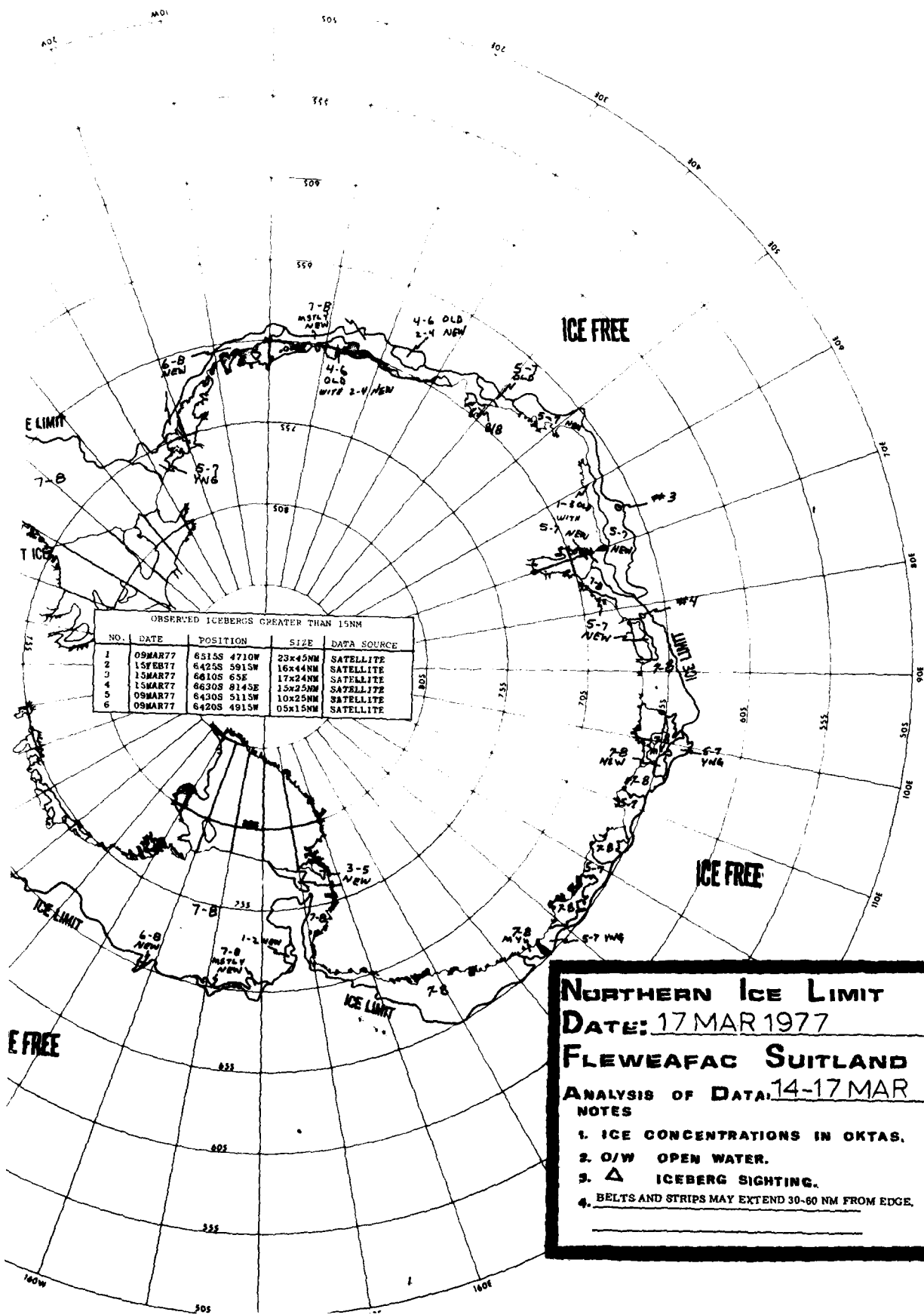




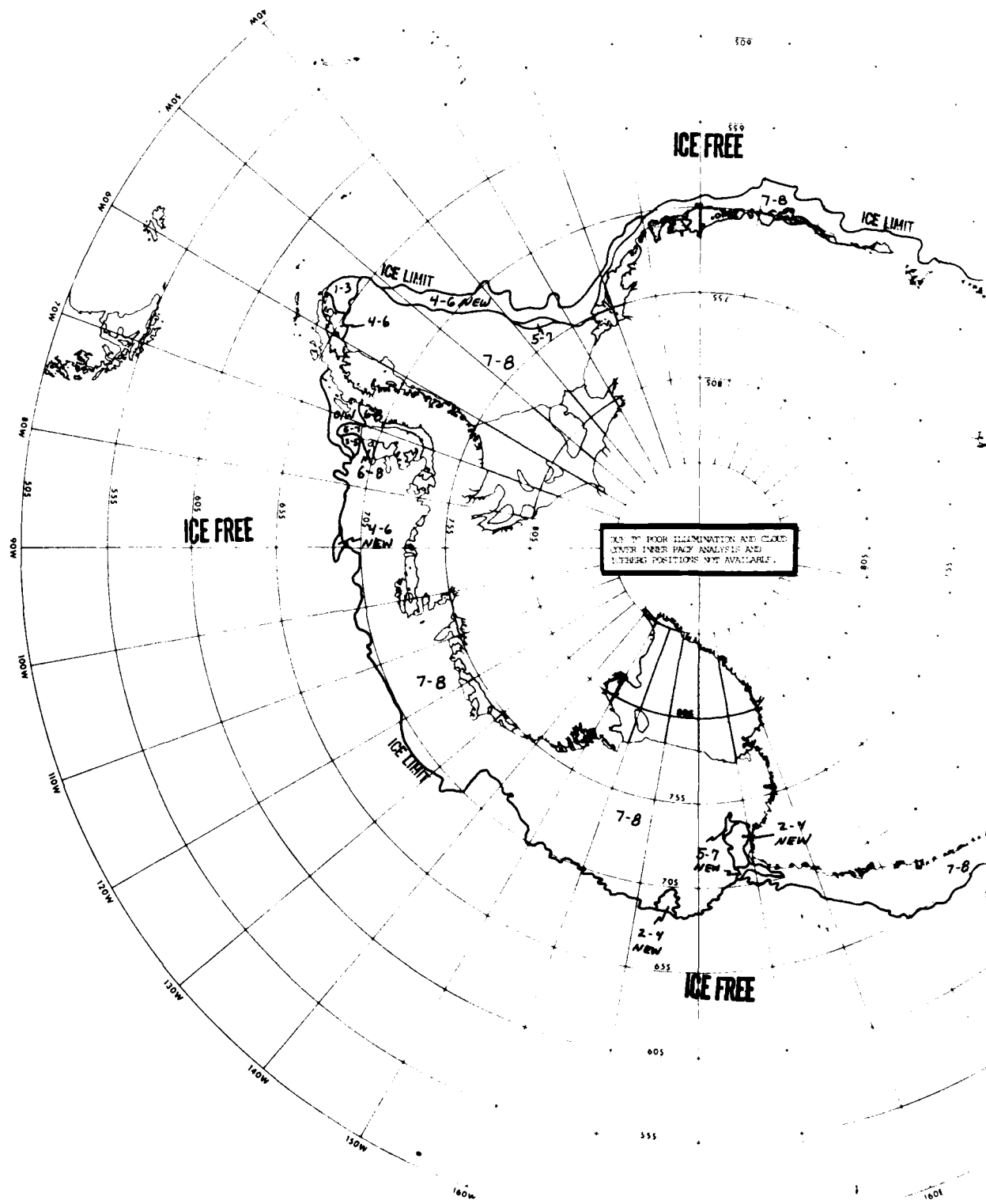


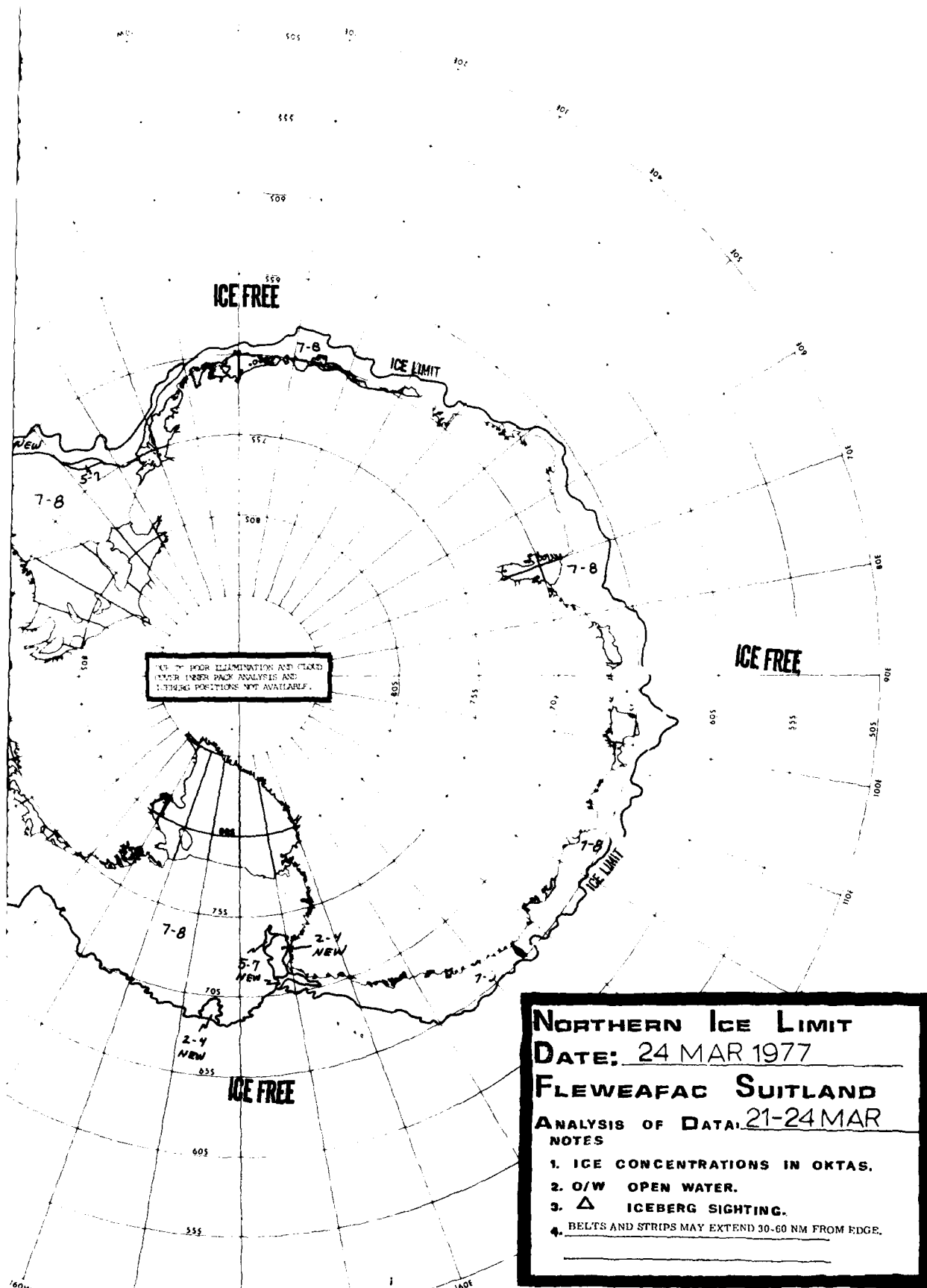






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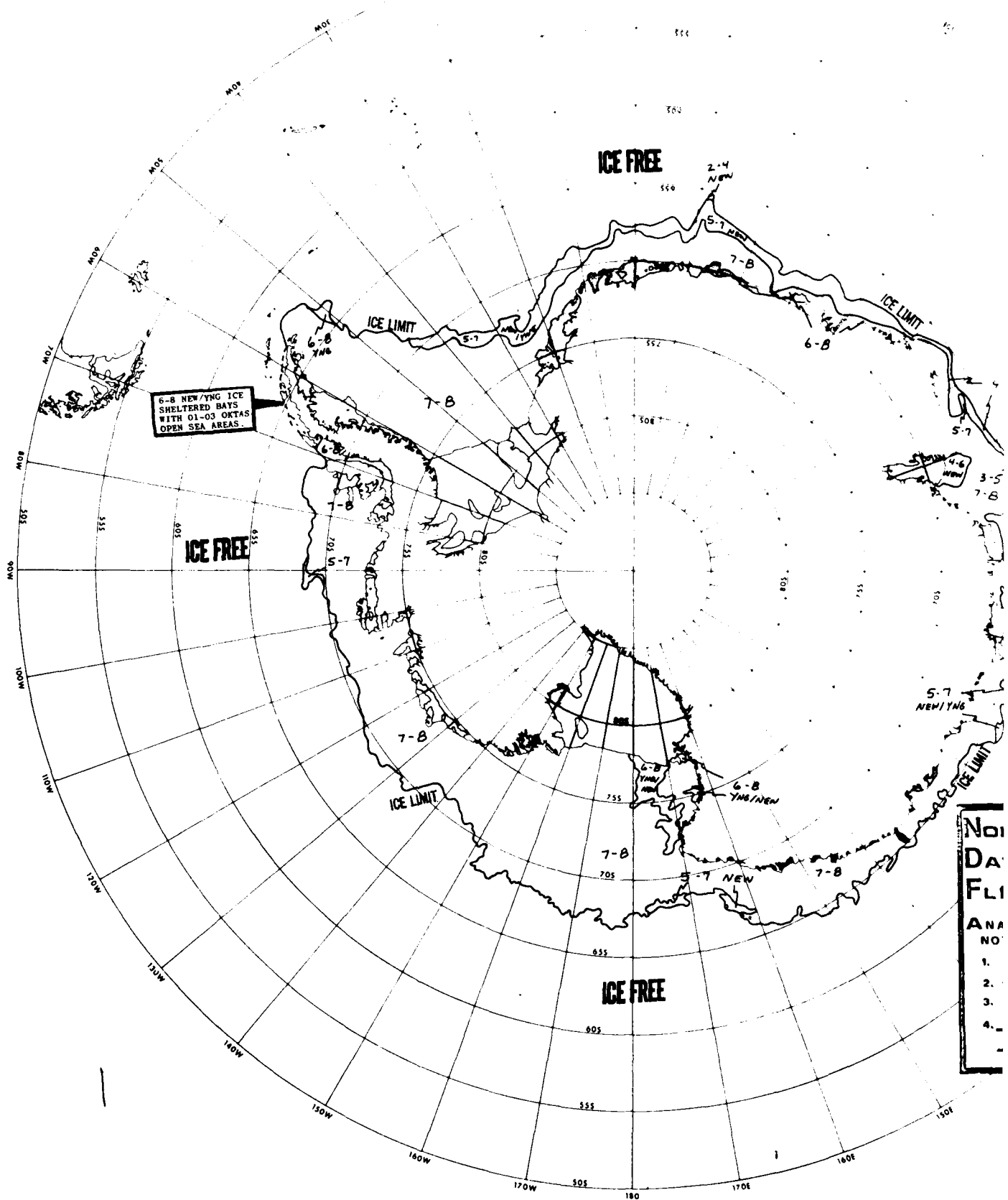




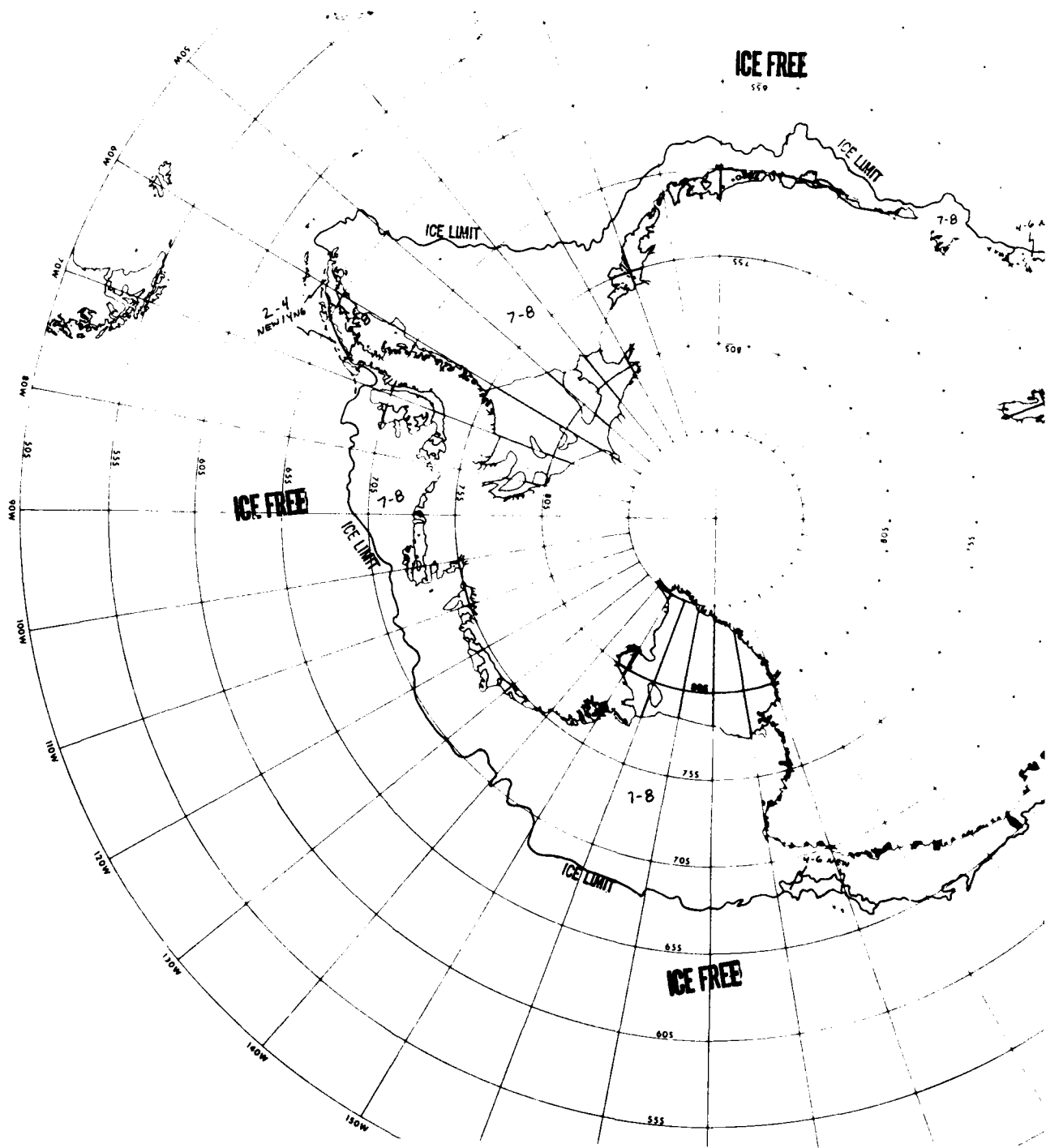
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2









ICE FREE

559

ICE LIMIT

7-B

4-G NEW

7-B

508

7-B

ICE FREE

ICE LIMIT

7-B

ICE FREE

# NORTHERN ICE LIMIT

DATE: 07 APR 1977

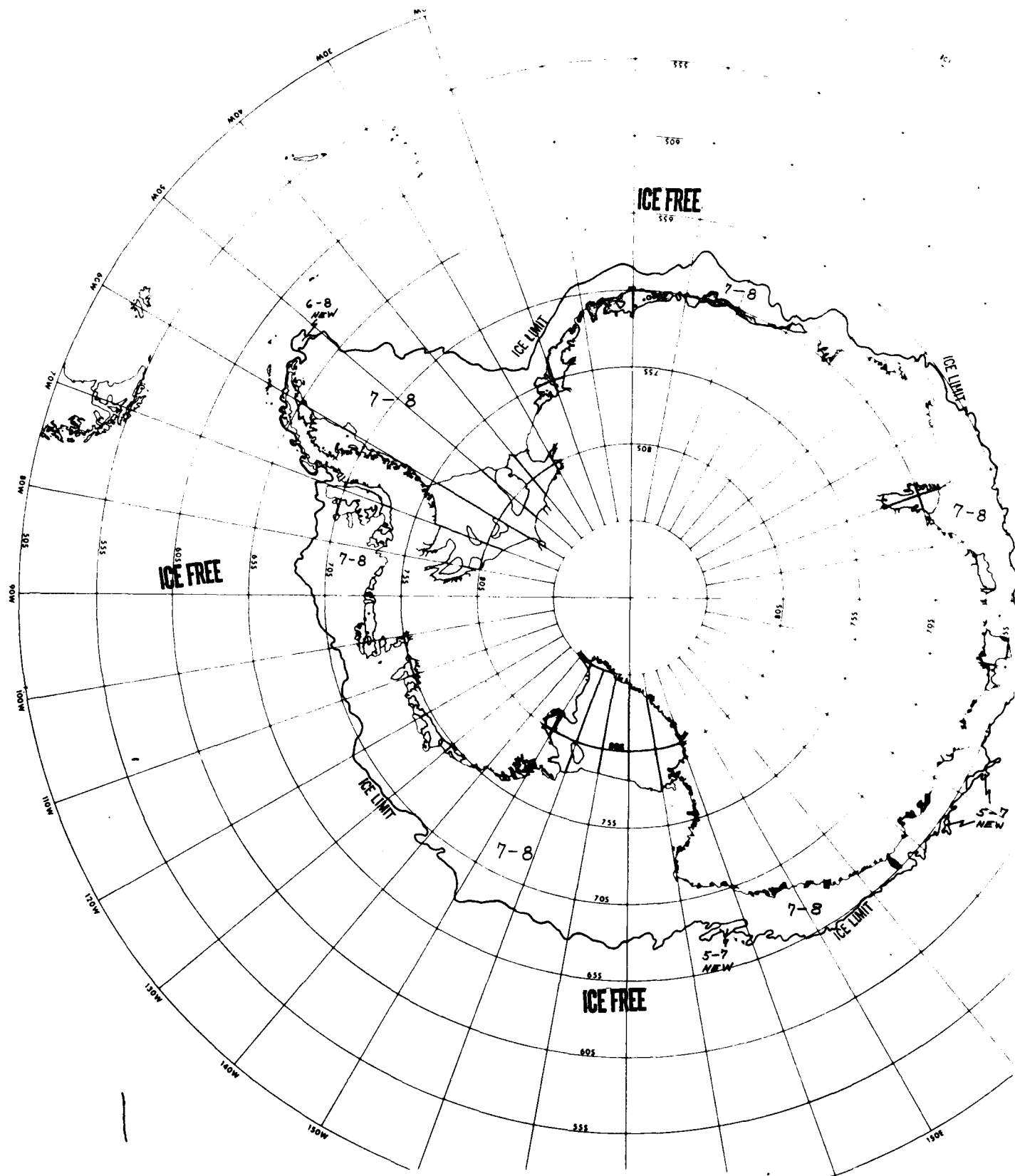
FLEWEAFAC SUITLAND

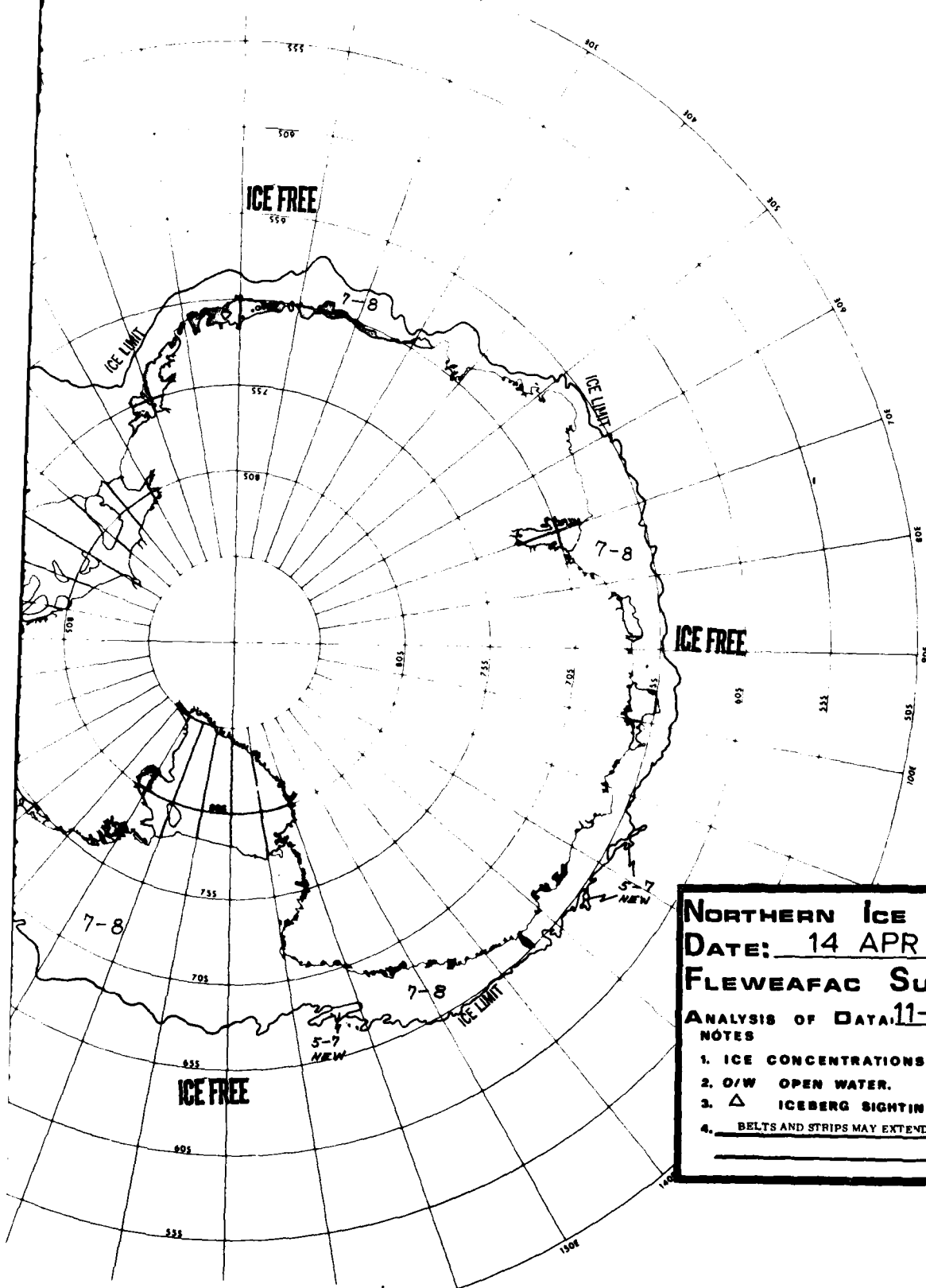
ANALYSIS OF DATA: 04-07 APR

## NOTES

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 10-60 NM FROM EDGE.

2





**NORTHERN ICE LIMIT**  
**DATE: 14 APR 1977**

**FLEWEAFAC SUITLAND**

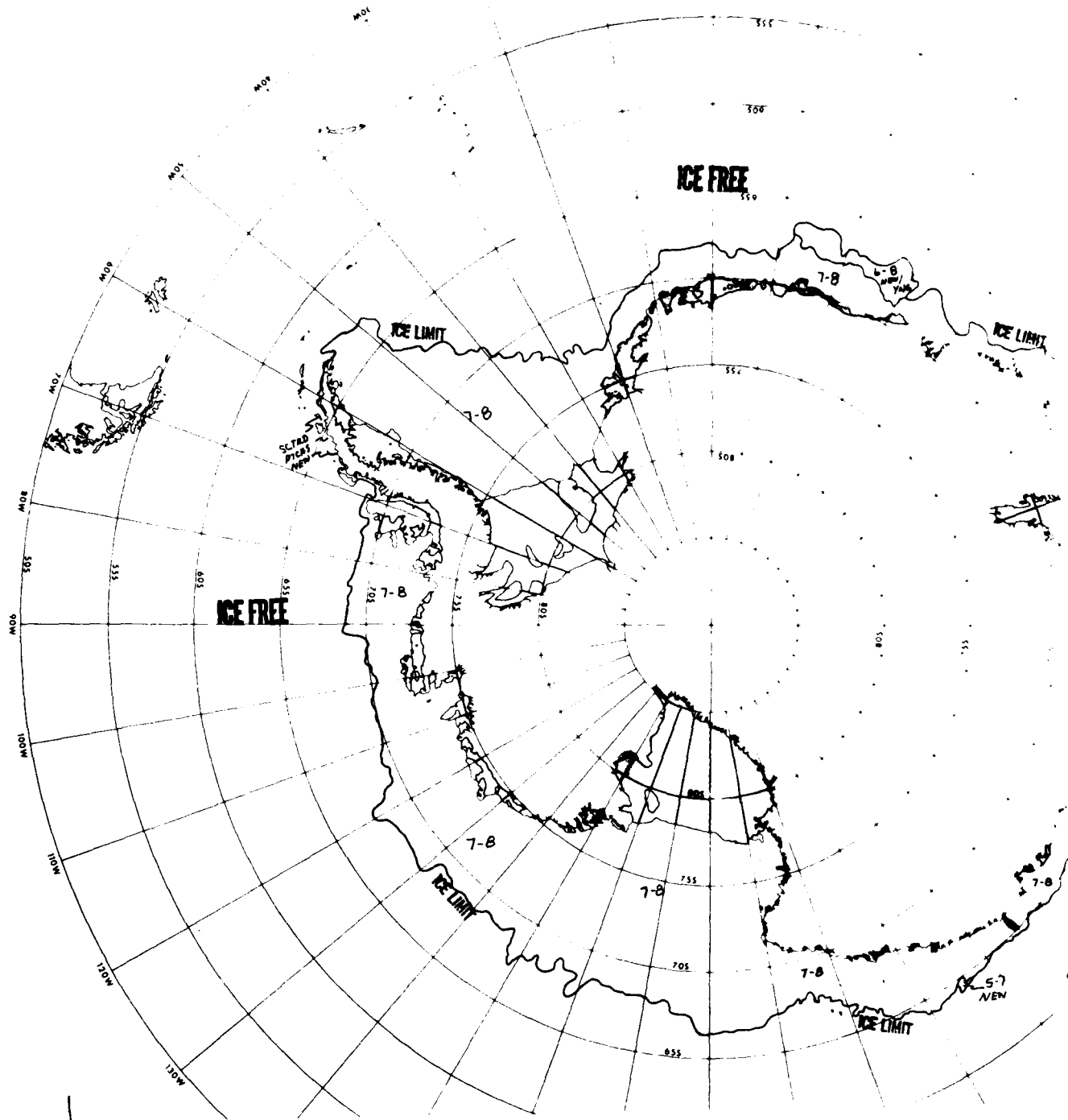
**ANALYSIS OF DATA 11-14 APR**

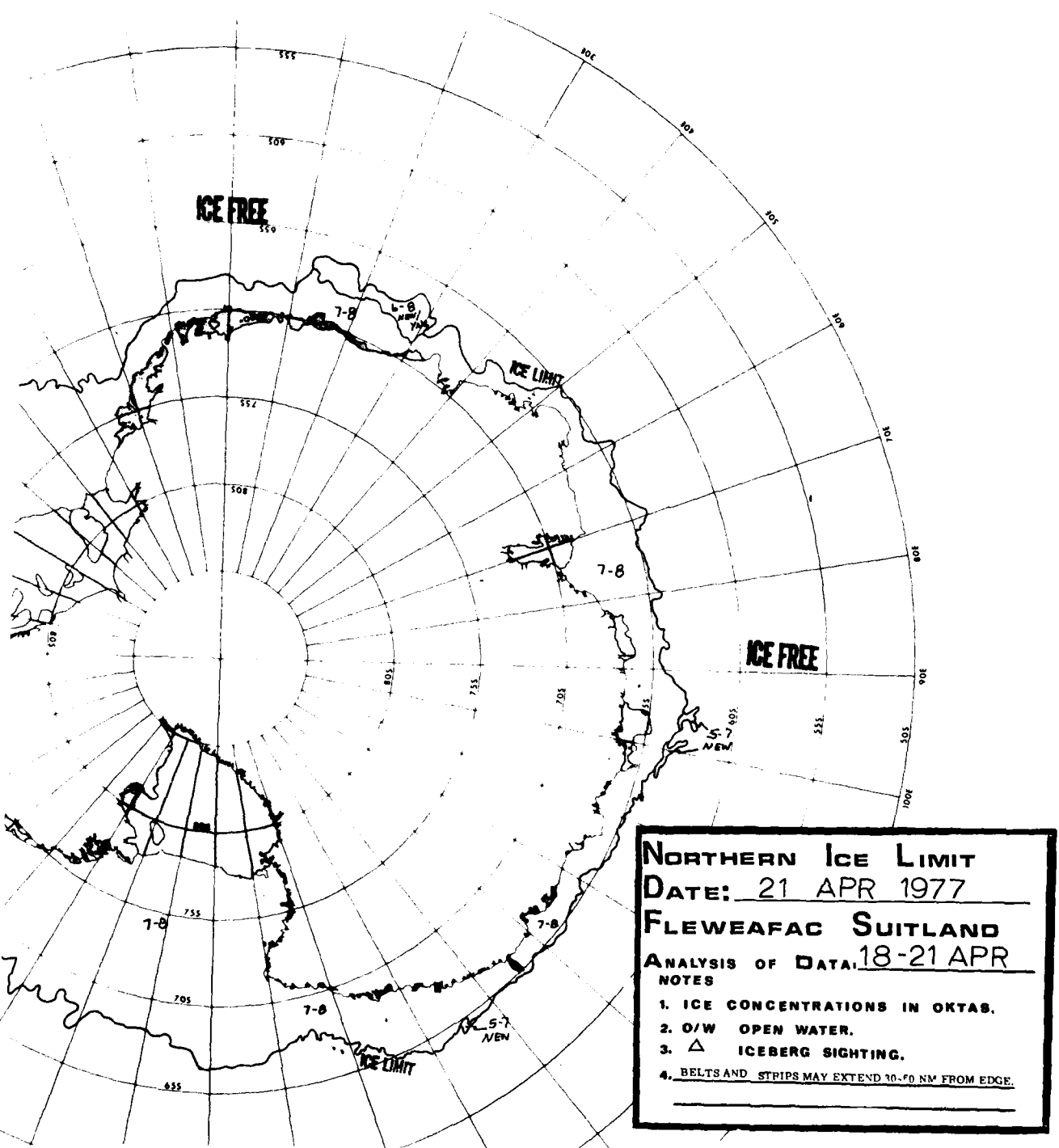
**NOTES**

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 10-60 NM FROM EDGE.

3

2



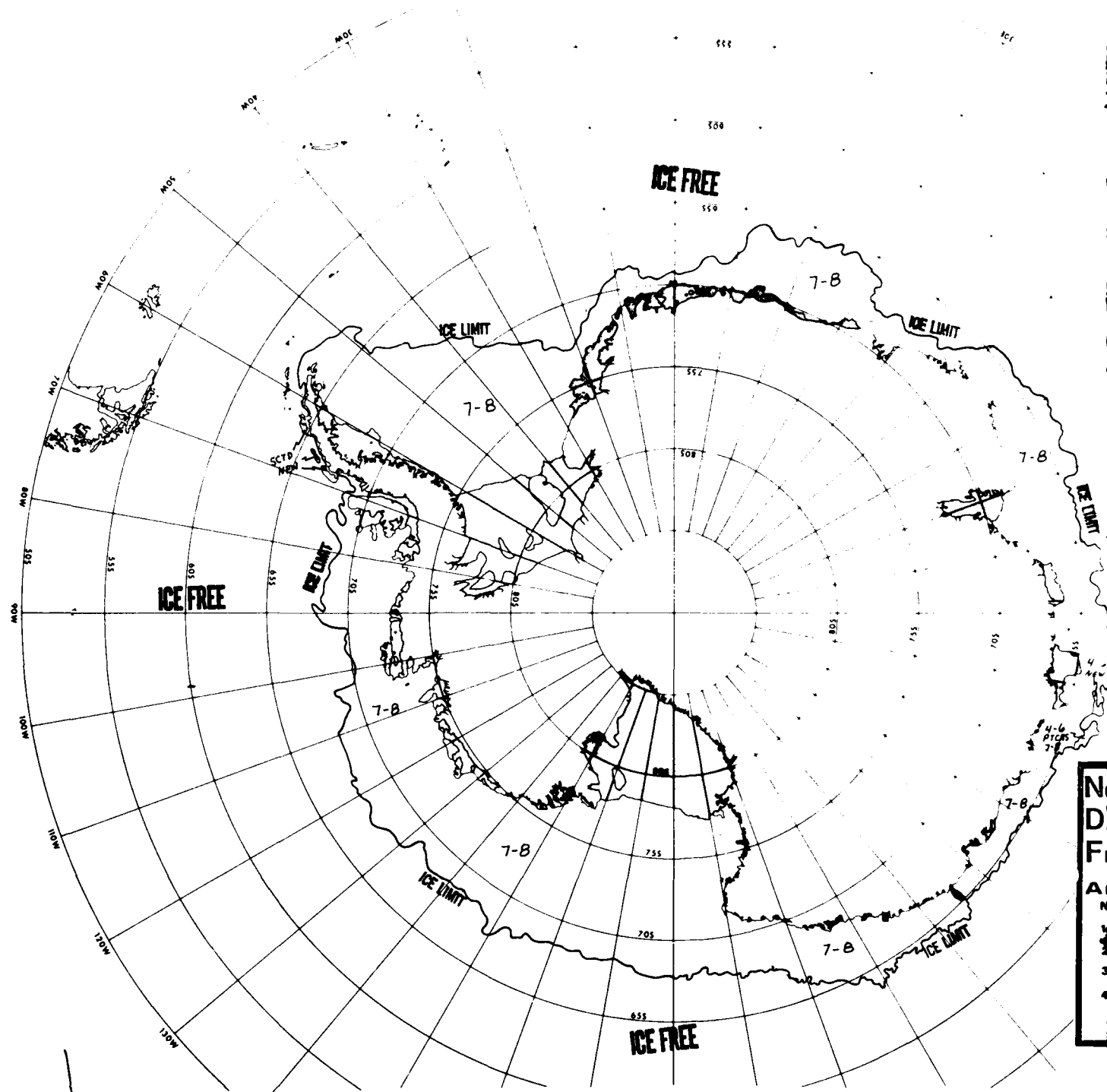


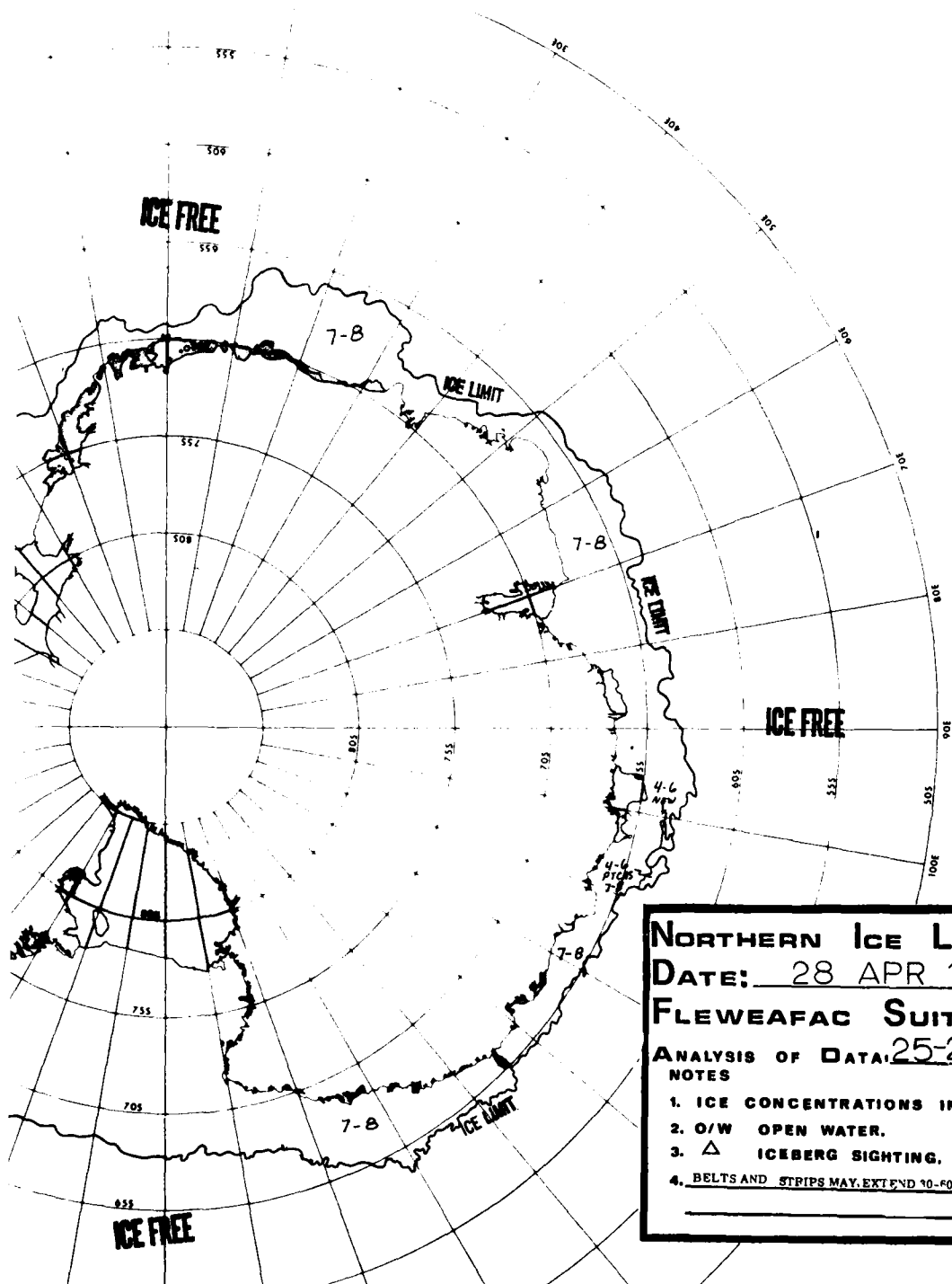
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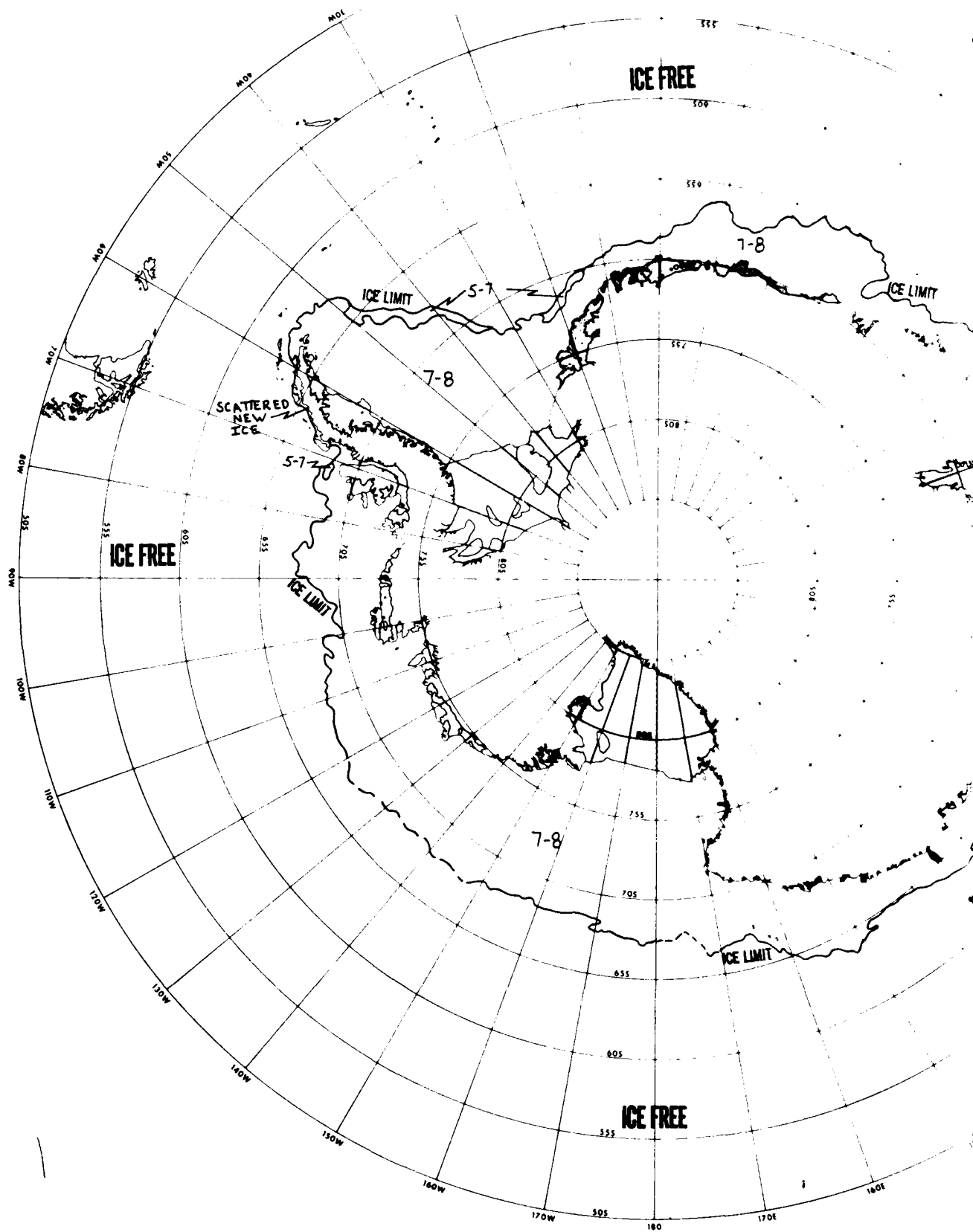


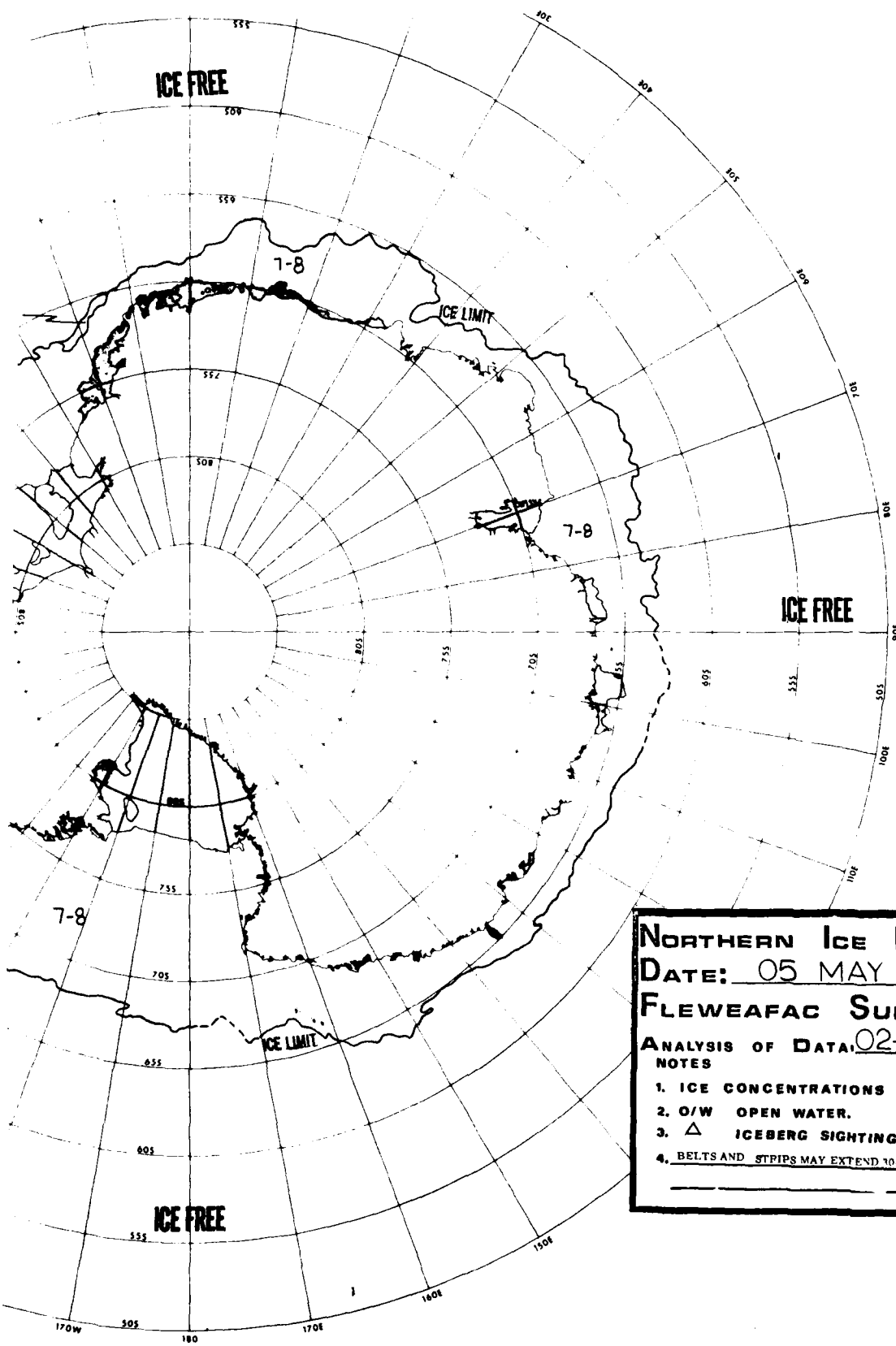




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**DATE:** 28 APR 1977  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA:** 25-28 APR  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 10-50 NM FROM EDGE.

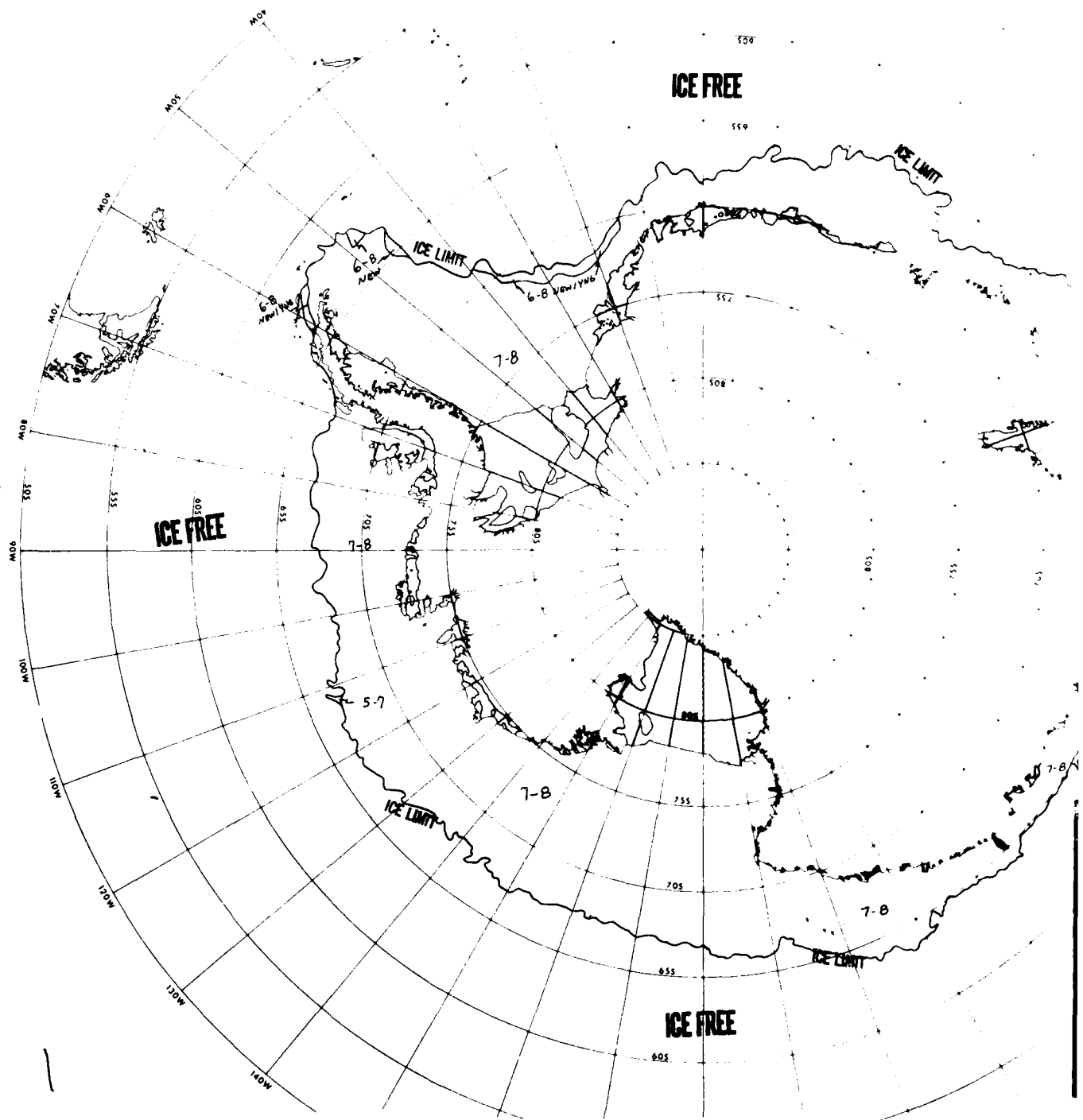
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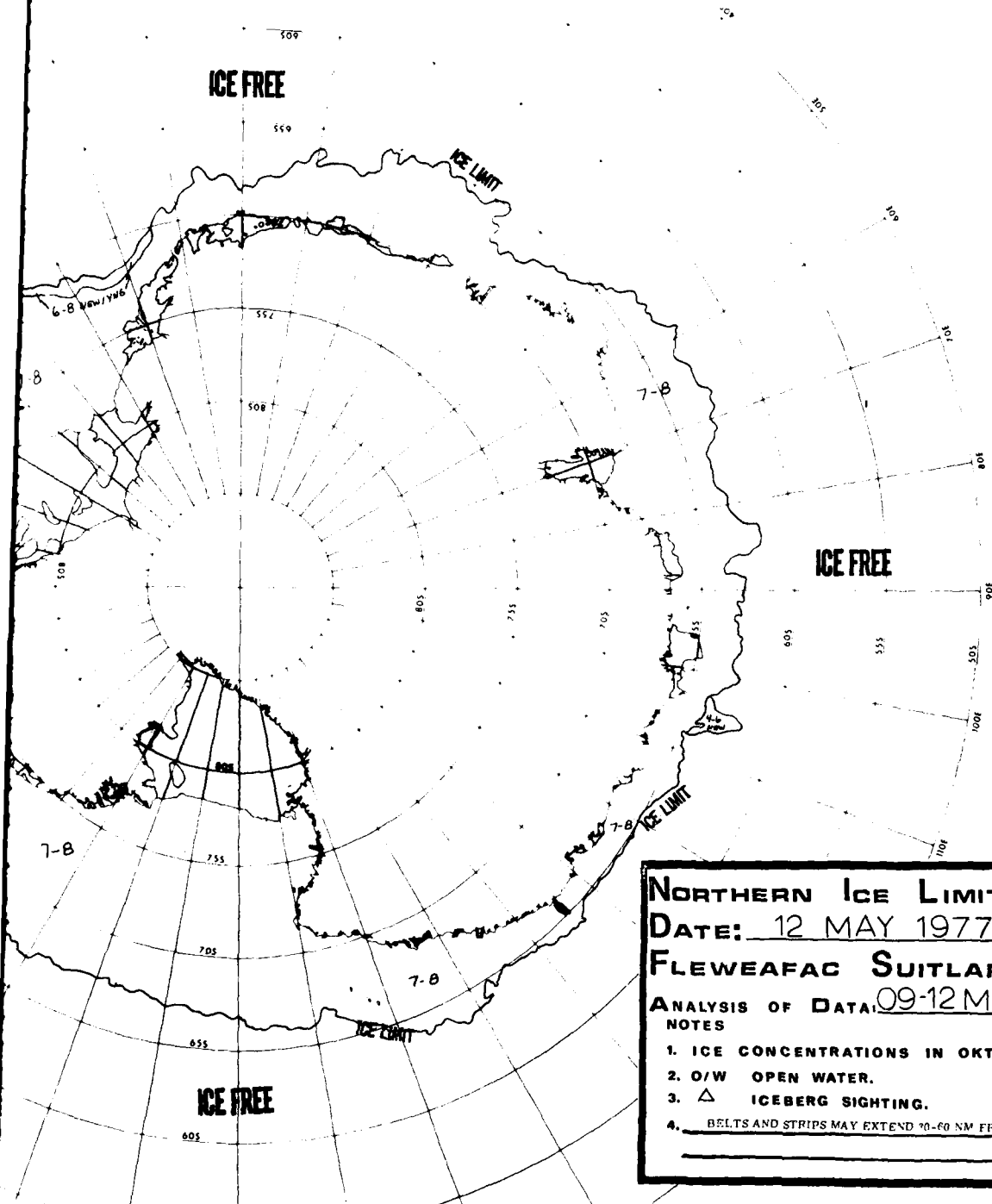


**NORTHERN ICE LIMIT**  
**DATE:** 05 MAY 1977  
**FLEWEAFAC SUTLAND**  
**ANALYSIS OF DATA:** 02-05 MAY  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 10-20 NM FROM EDGE.

2



ICE FREE



ICE FREE

ICE FREE

# NORTHERN ICE LIMIT

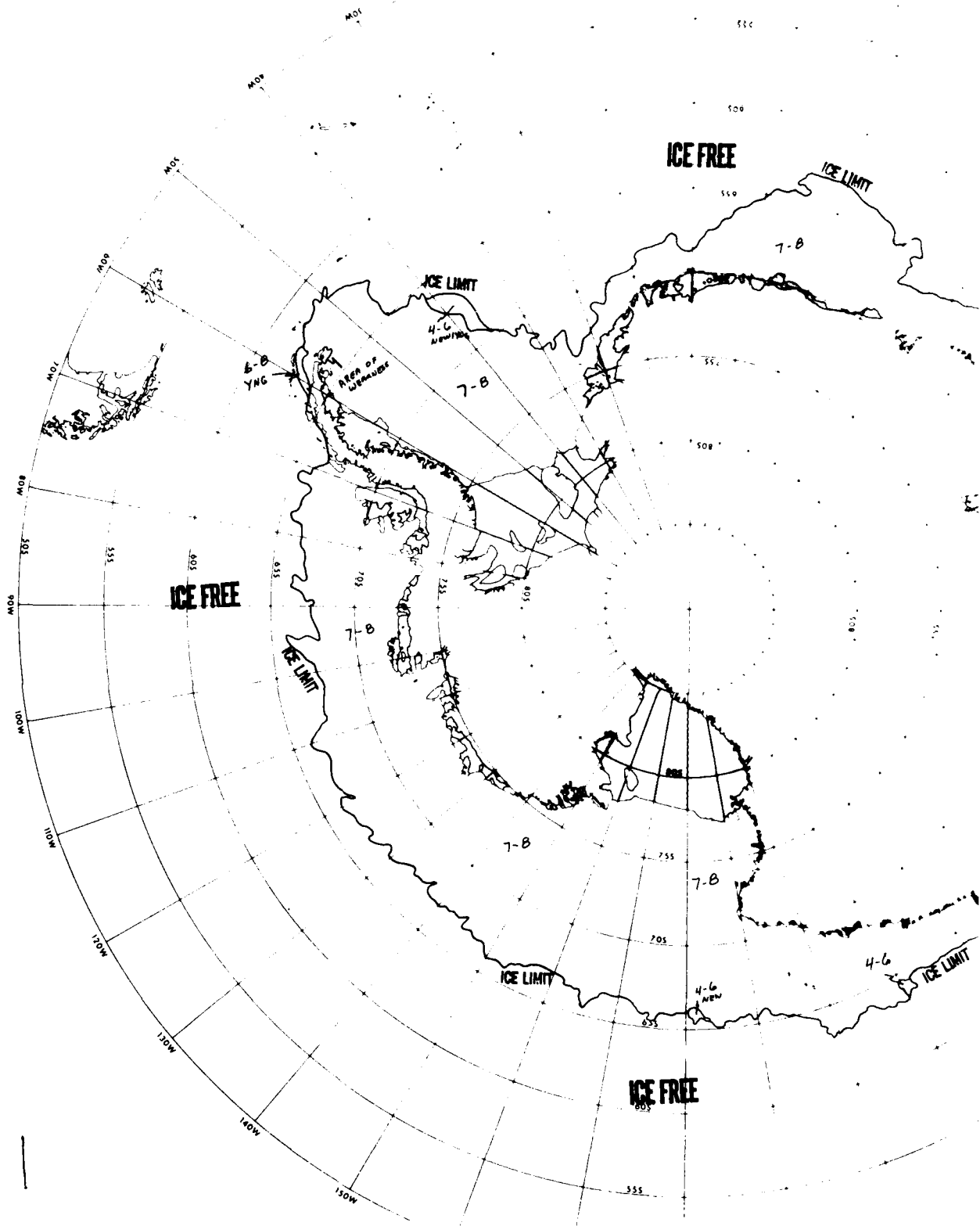
DATE: 12 MAY 1977

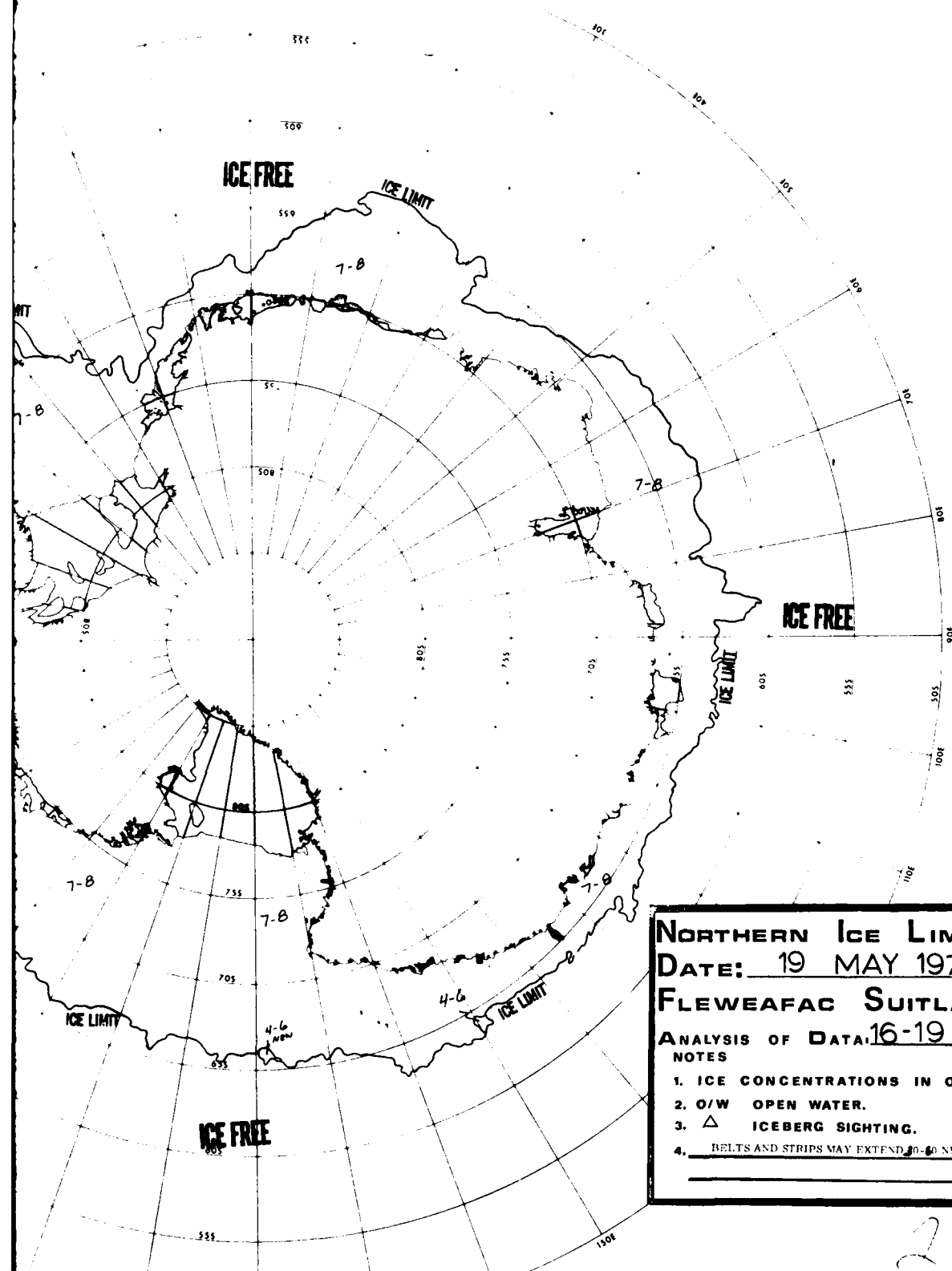
FLEWEAFAC SUITLAND

ANALYSIS OF DATA: 09-12 MAY

## NOTES

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 20-60 NM FROM EDGE.





# **NORTHERN ICE LIMIT**

**DATE: 19 MAY 1977**

**FLEWEAFAC SUITLAND**

**ANALYSIS OF DATA 16-19 MAY**

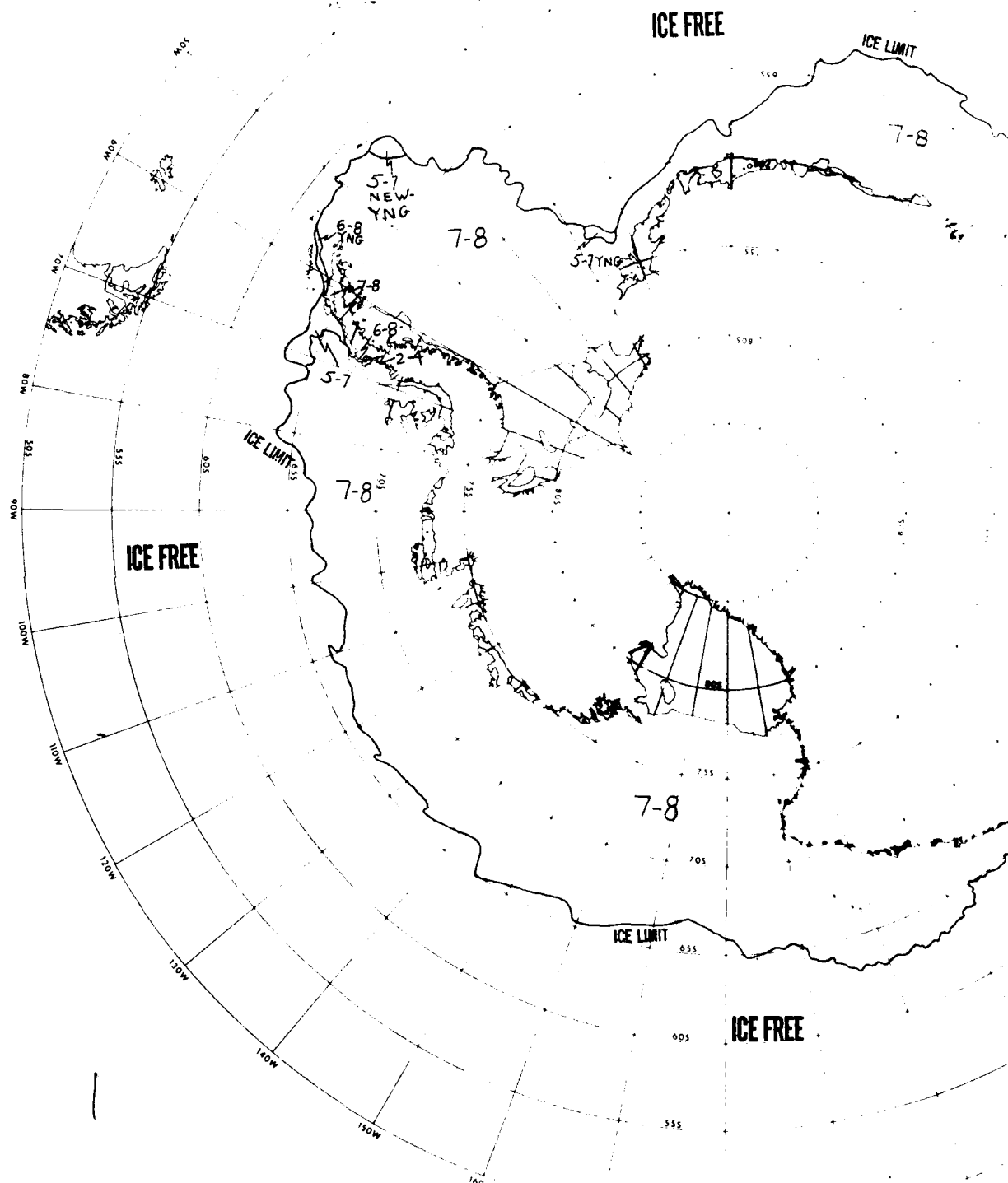
## **NOTES**

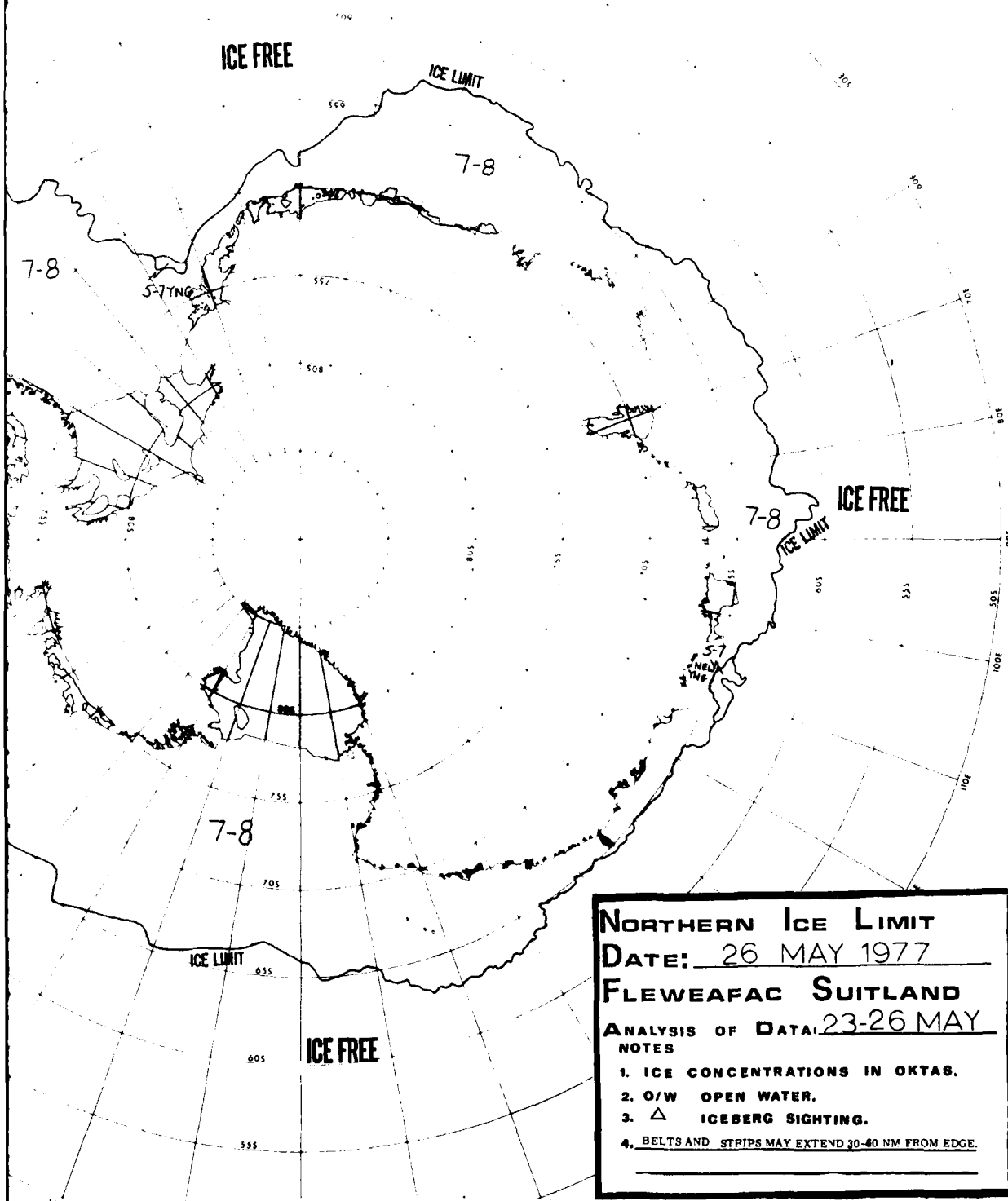
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 10-40 NM FROM EDGE.

2

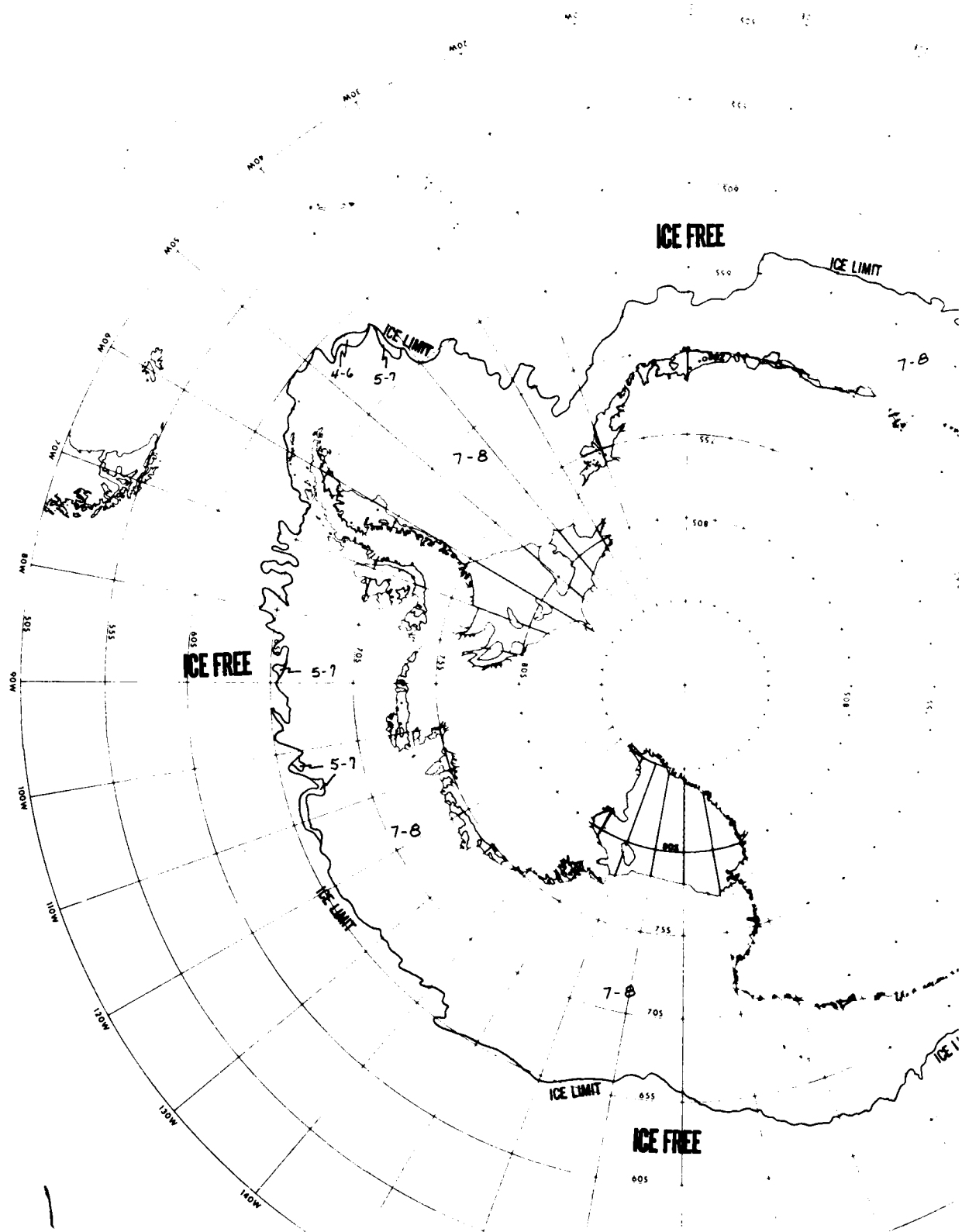
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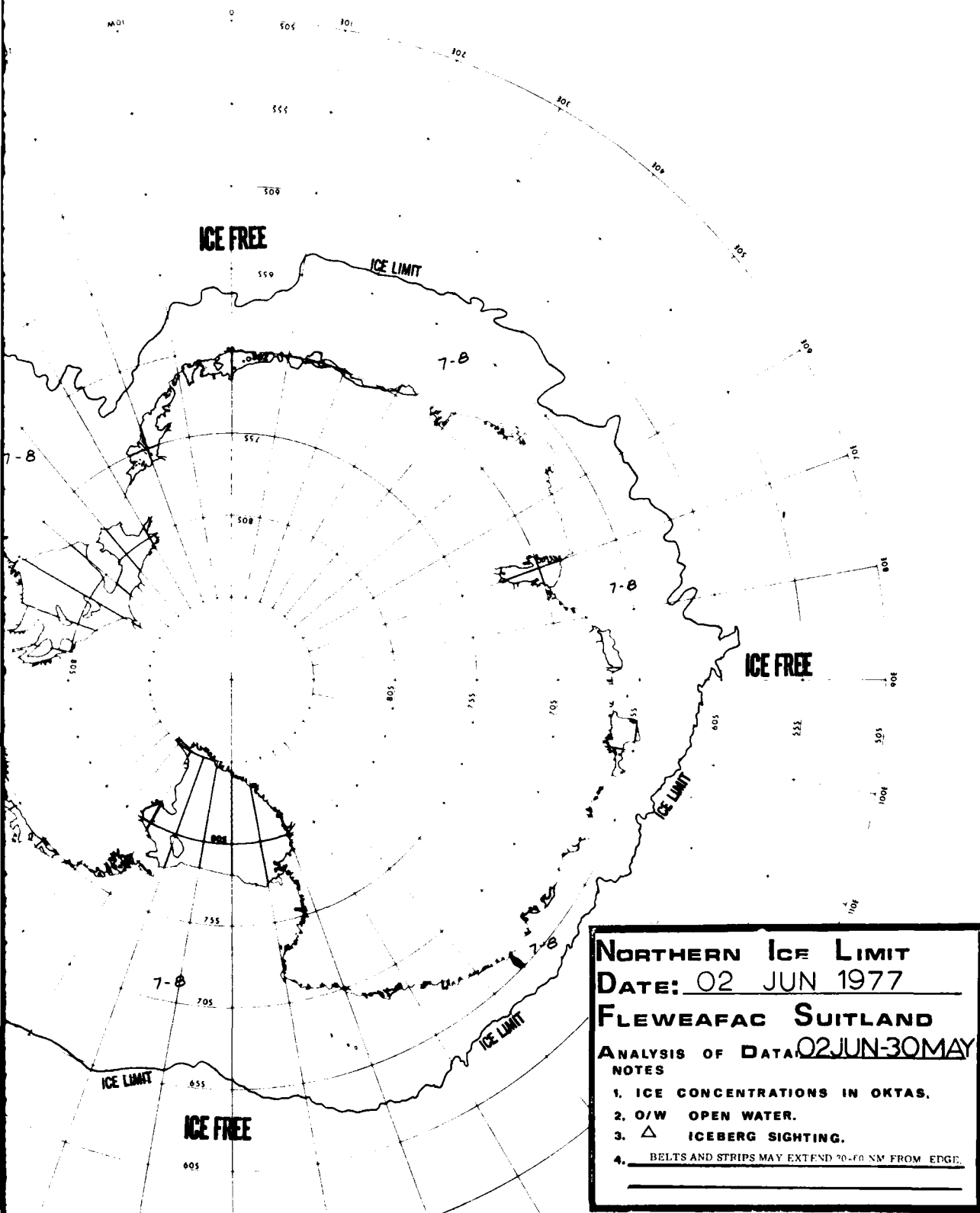




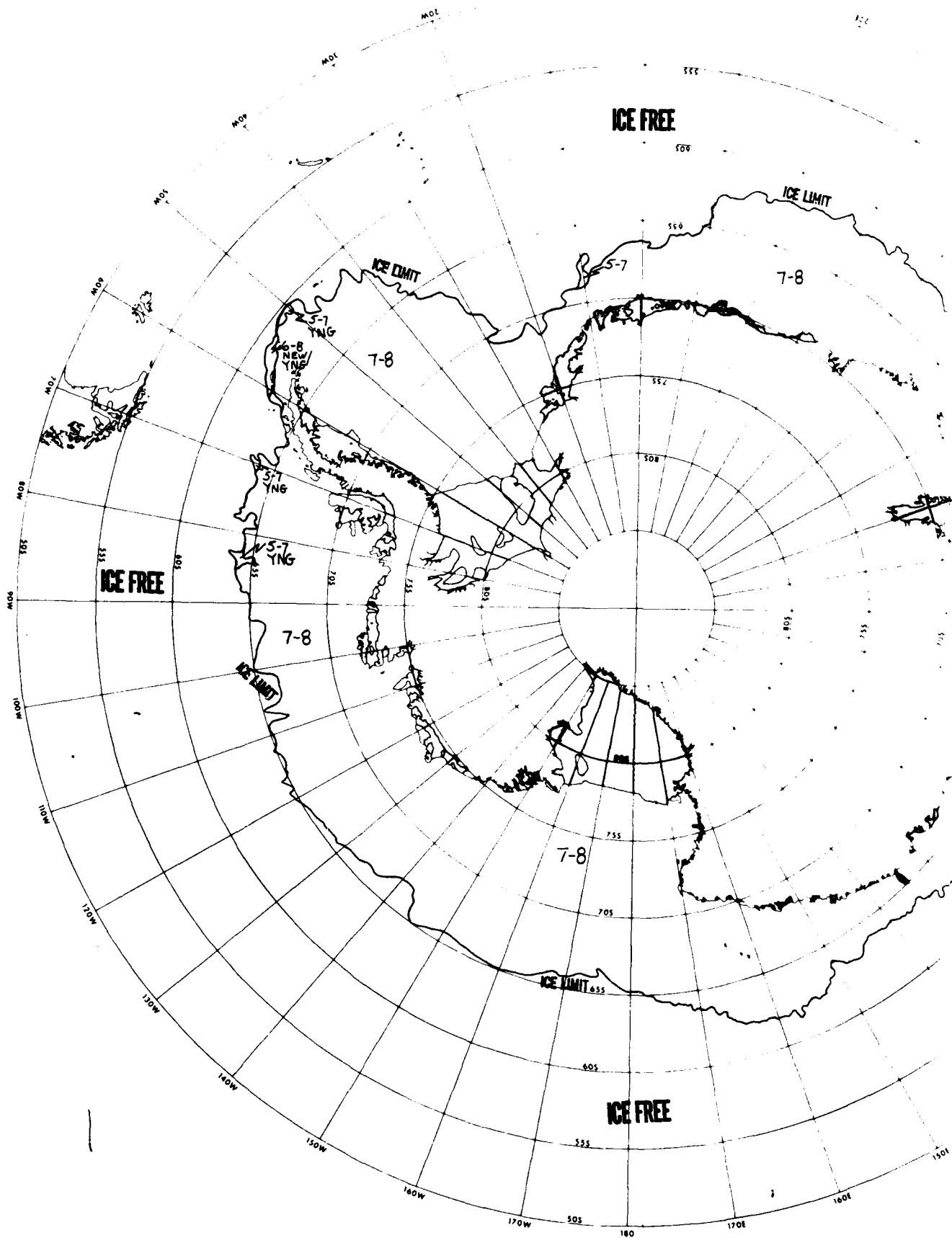


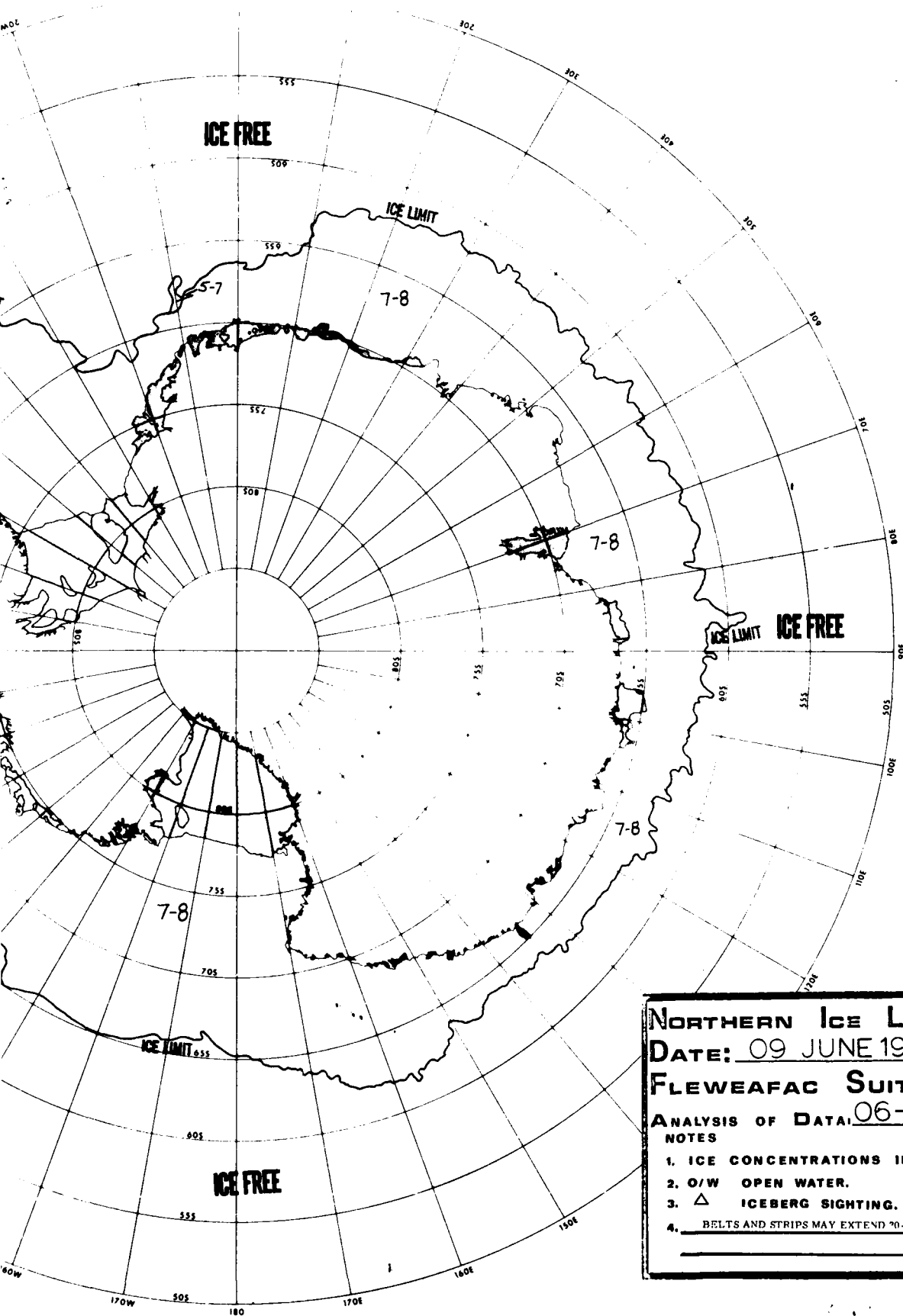
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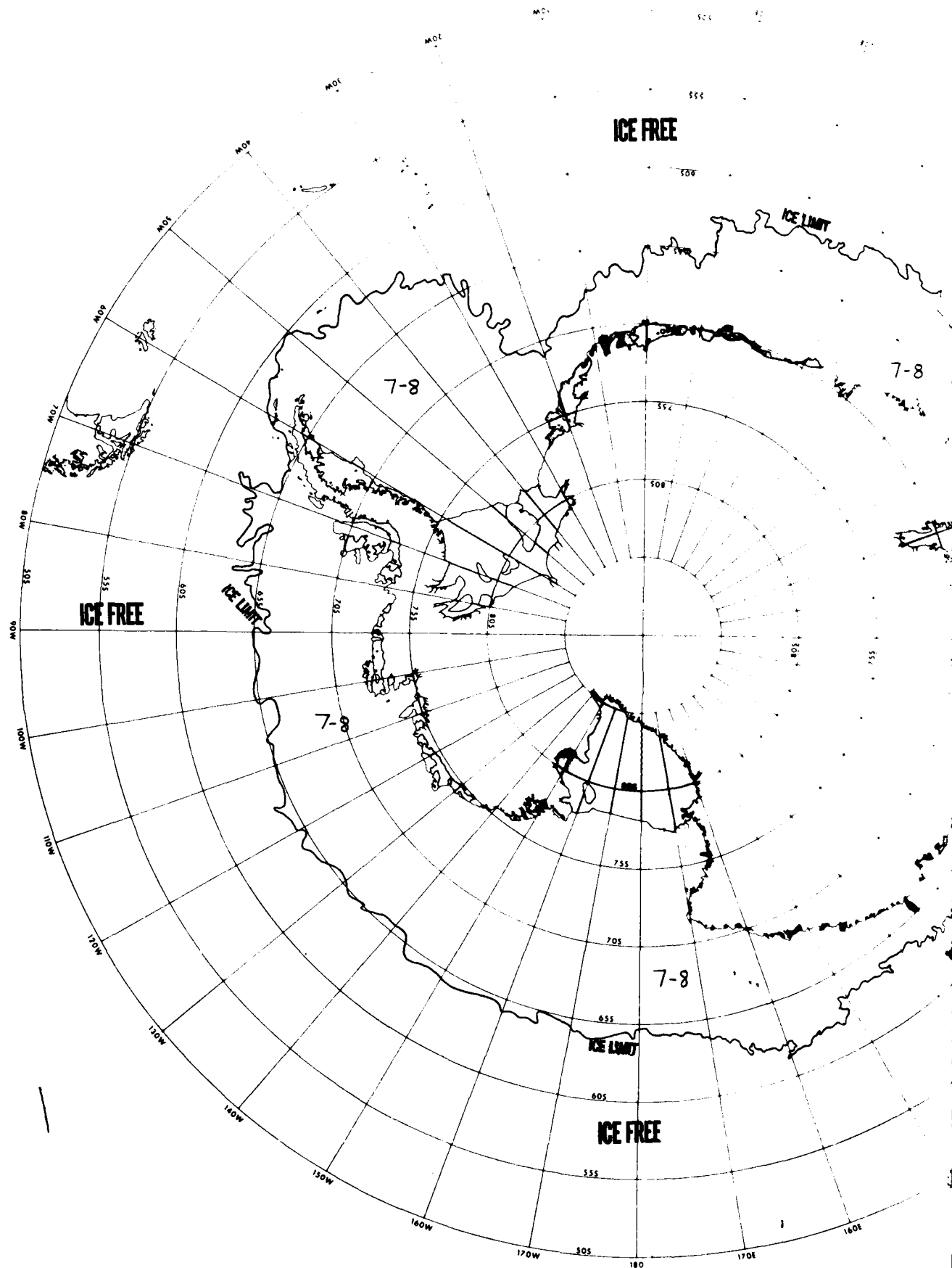
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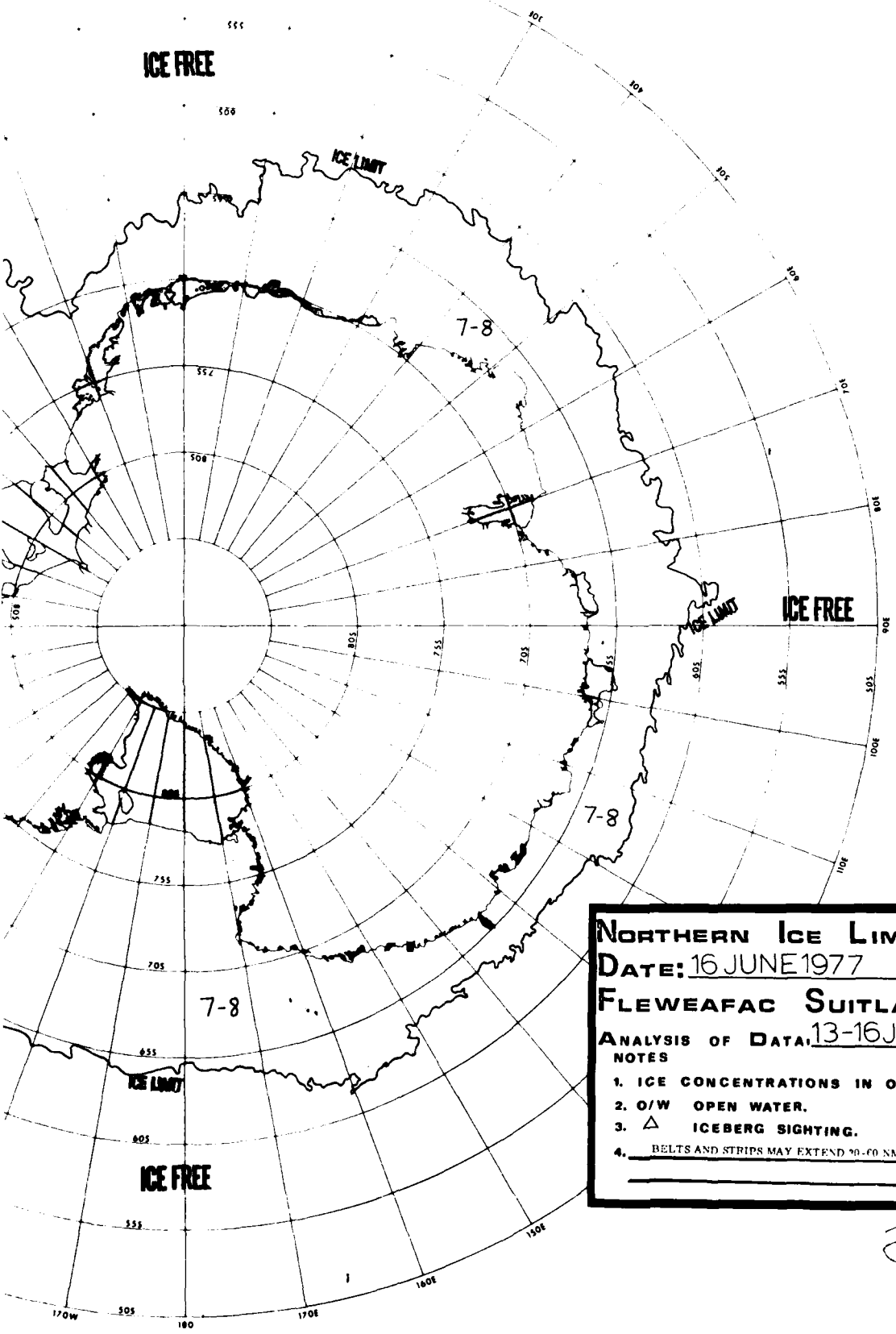


**NORTHERN ICE LIMIT**  
**DATE:** 09 JUNE 1977  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA:** 06-09 JUNE  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 70-80 NM FROM EDGE.

2



ICE FREE



**NORTHERN ICE LIMIT**

**DATE: 16 JUNE 1977**

**FLEWEAFAC SUITLAND**

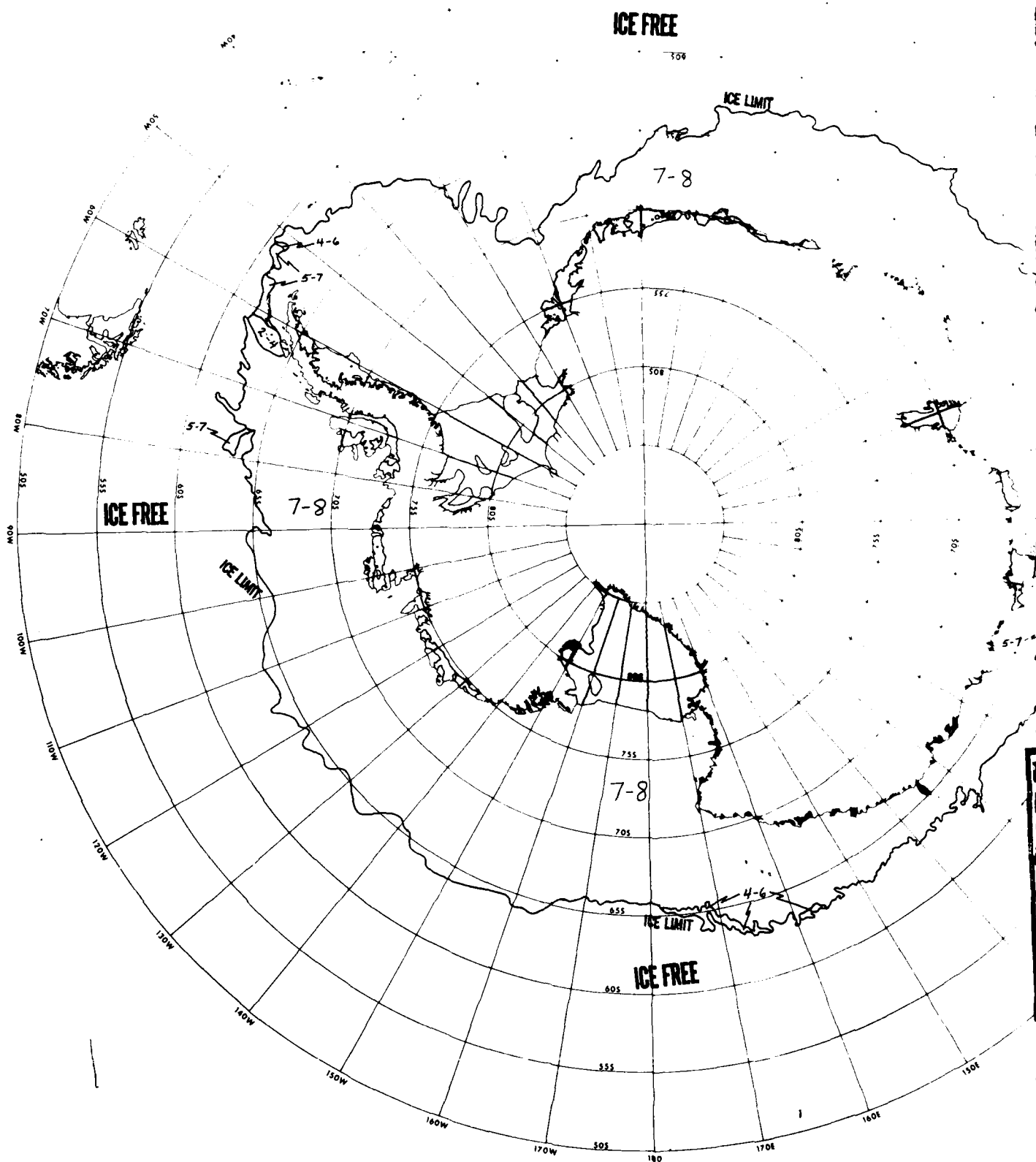
**ANALYSIS OF DATA: 13-16 JUNE**

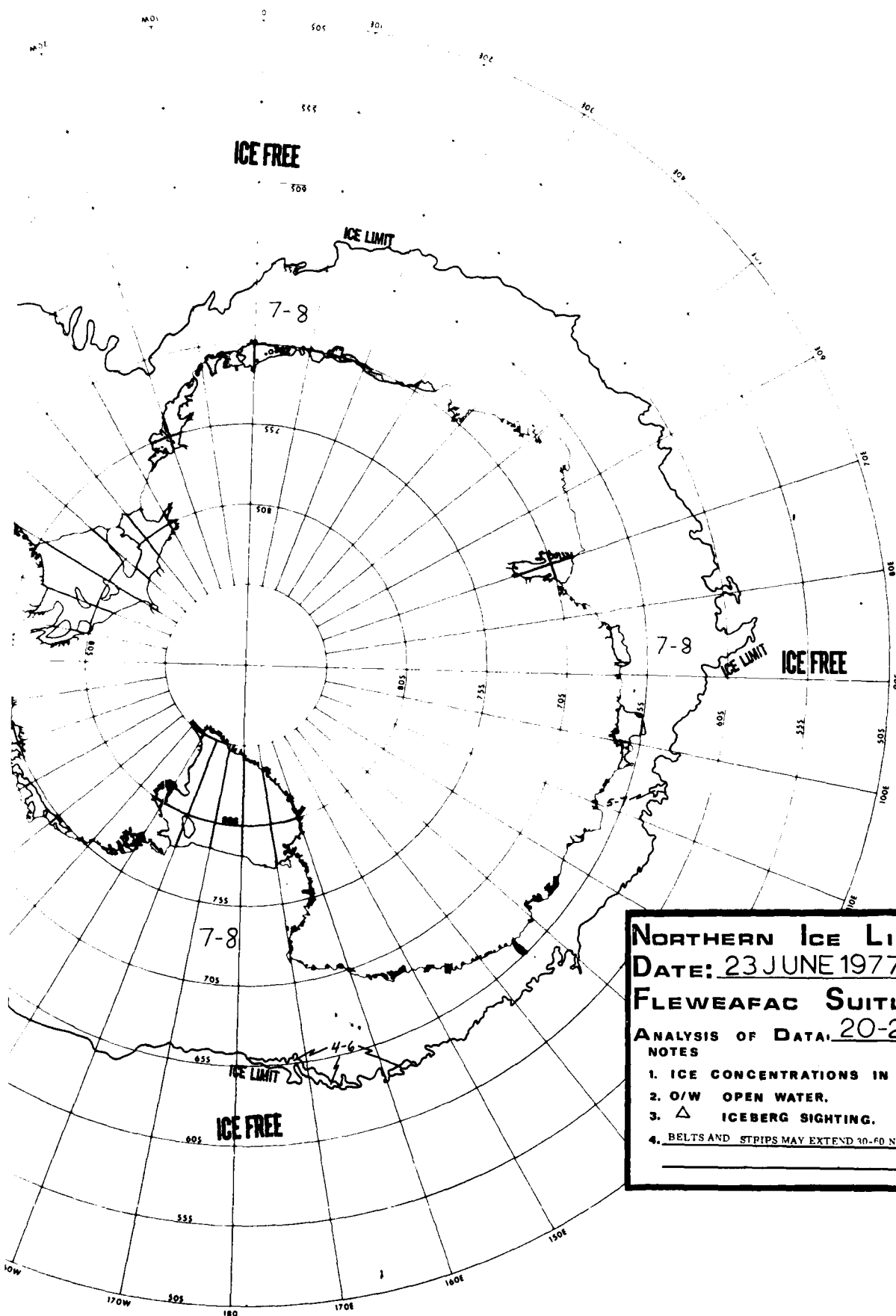
**NOTES**

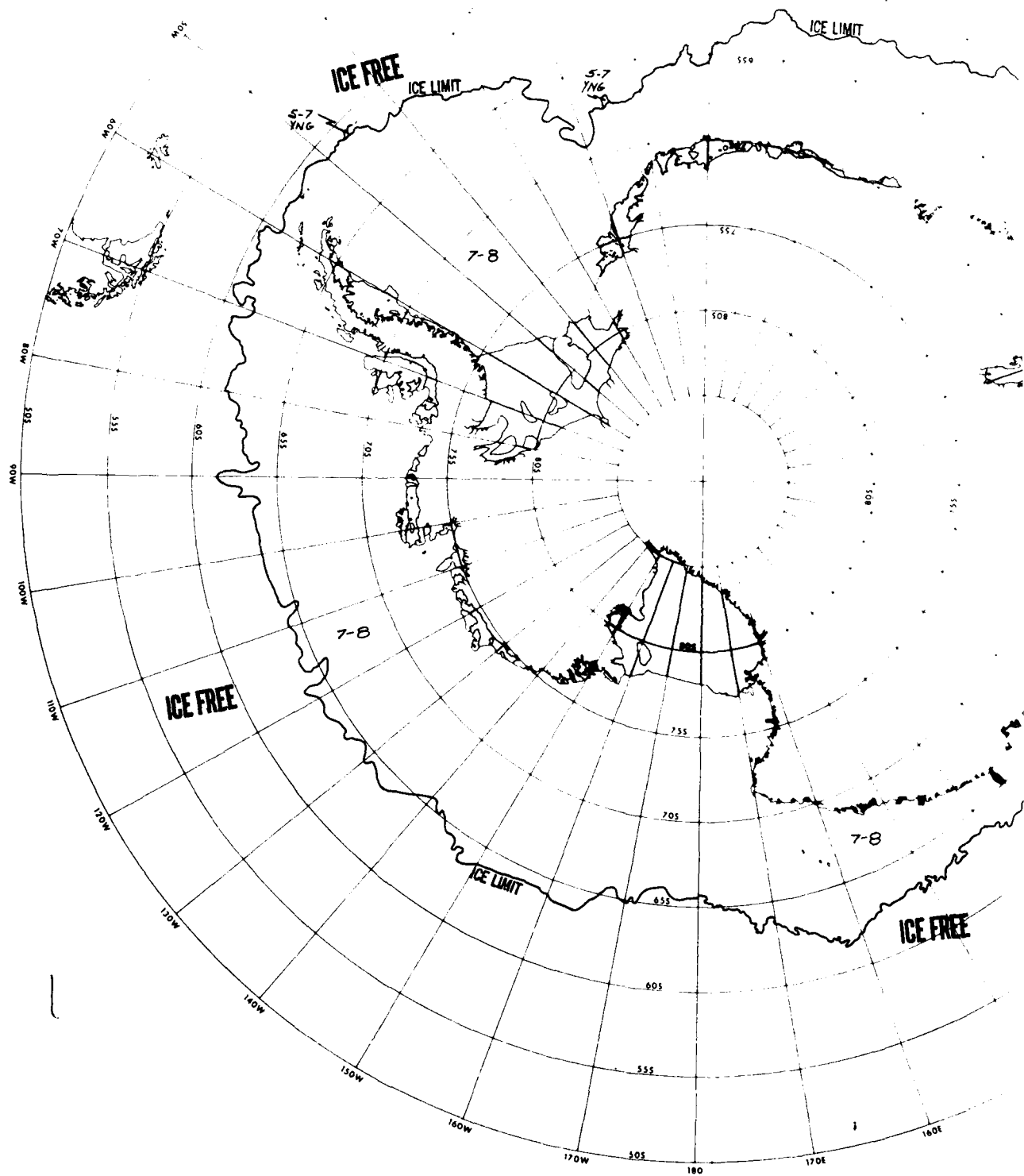
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 90-60 NM FROM EDGE.

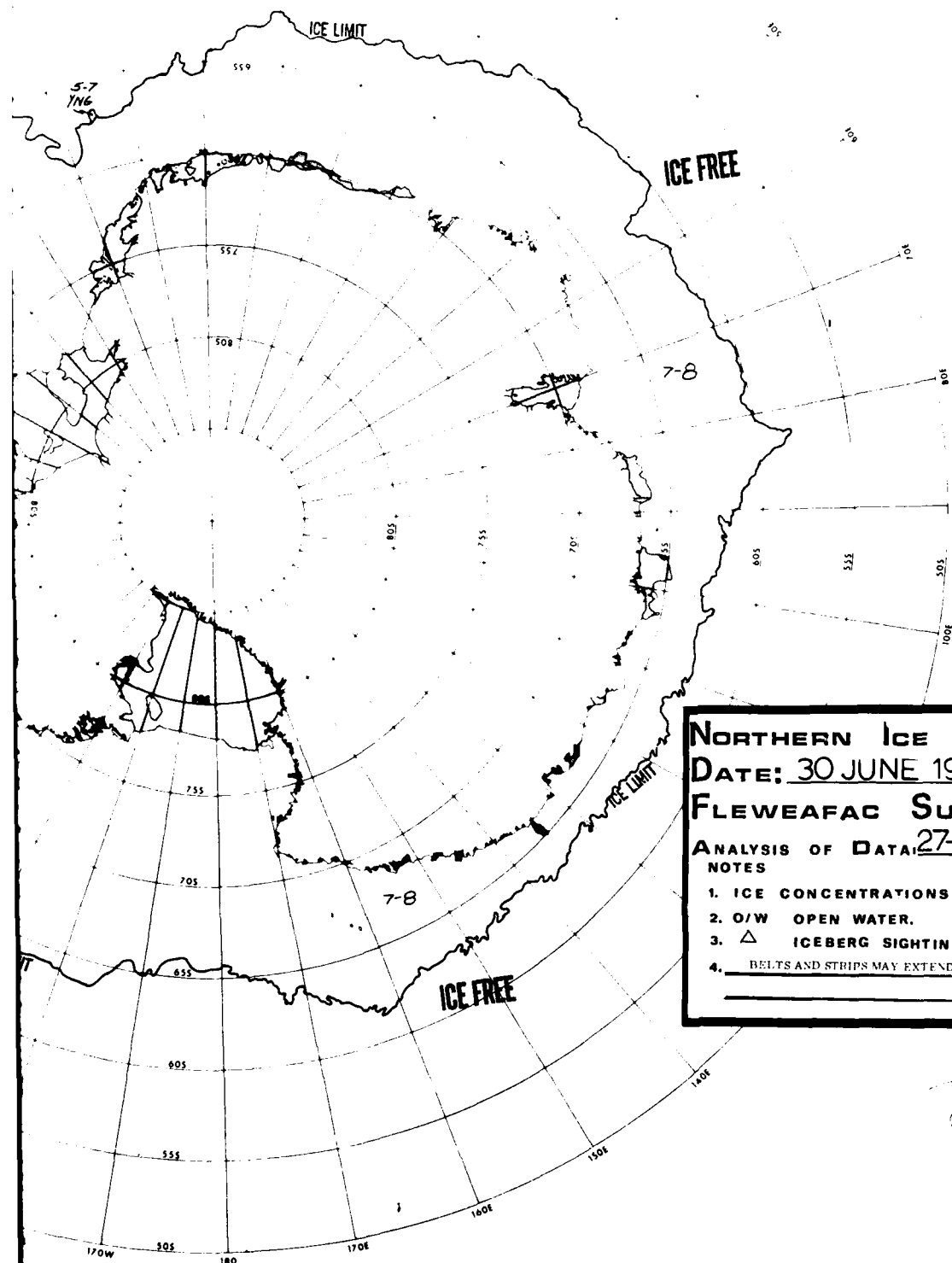
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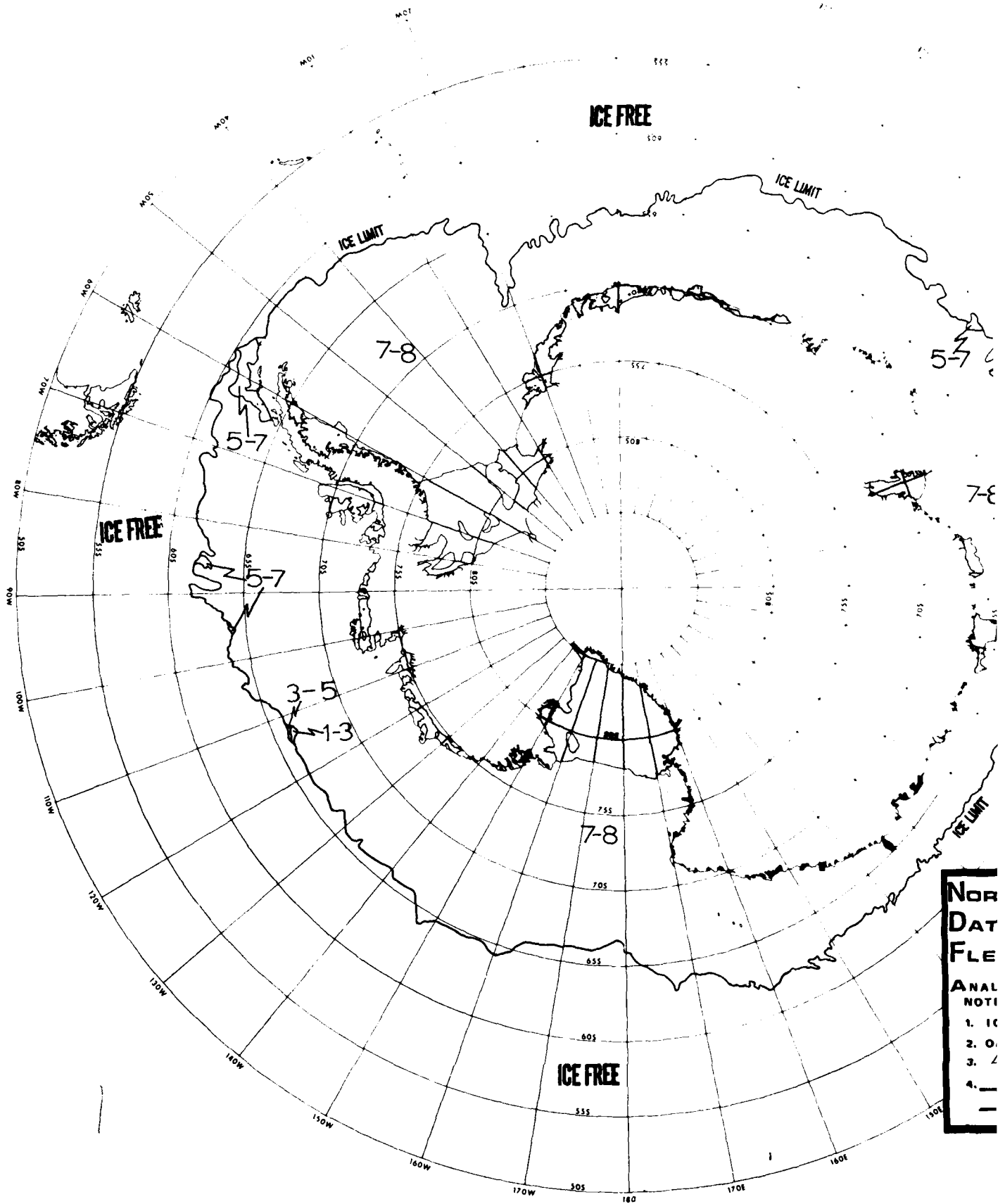


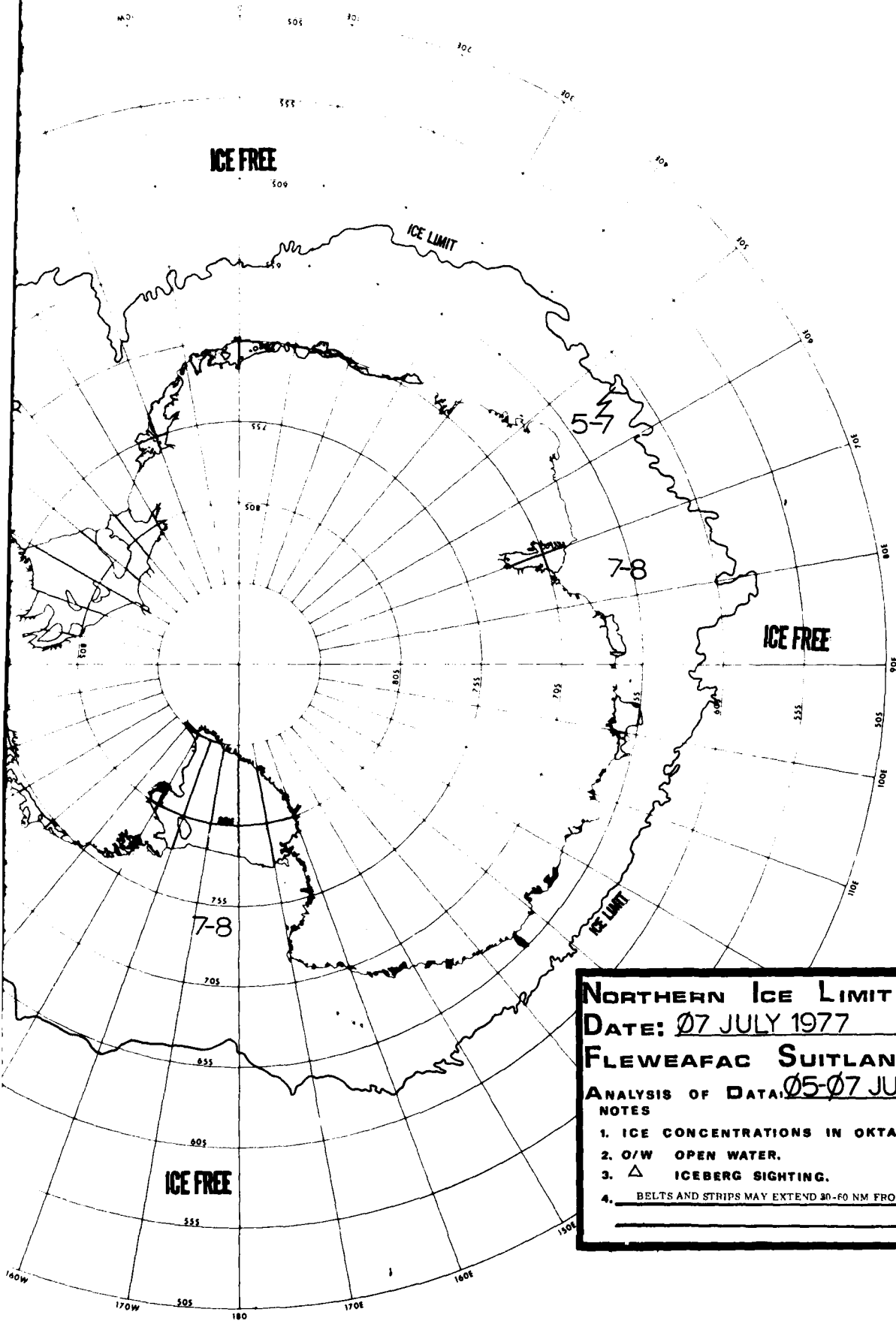




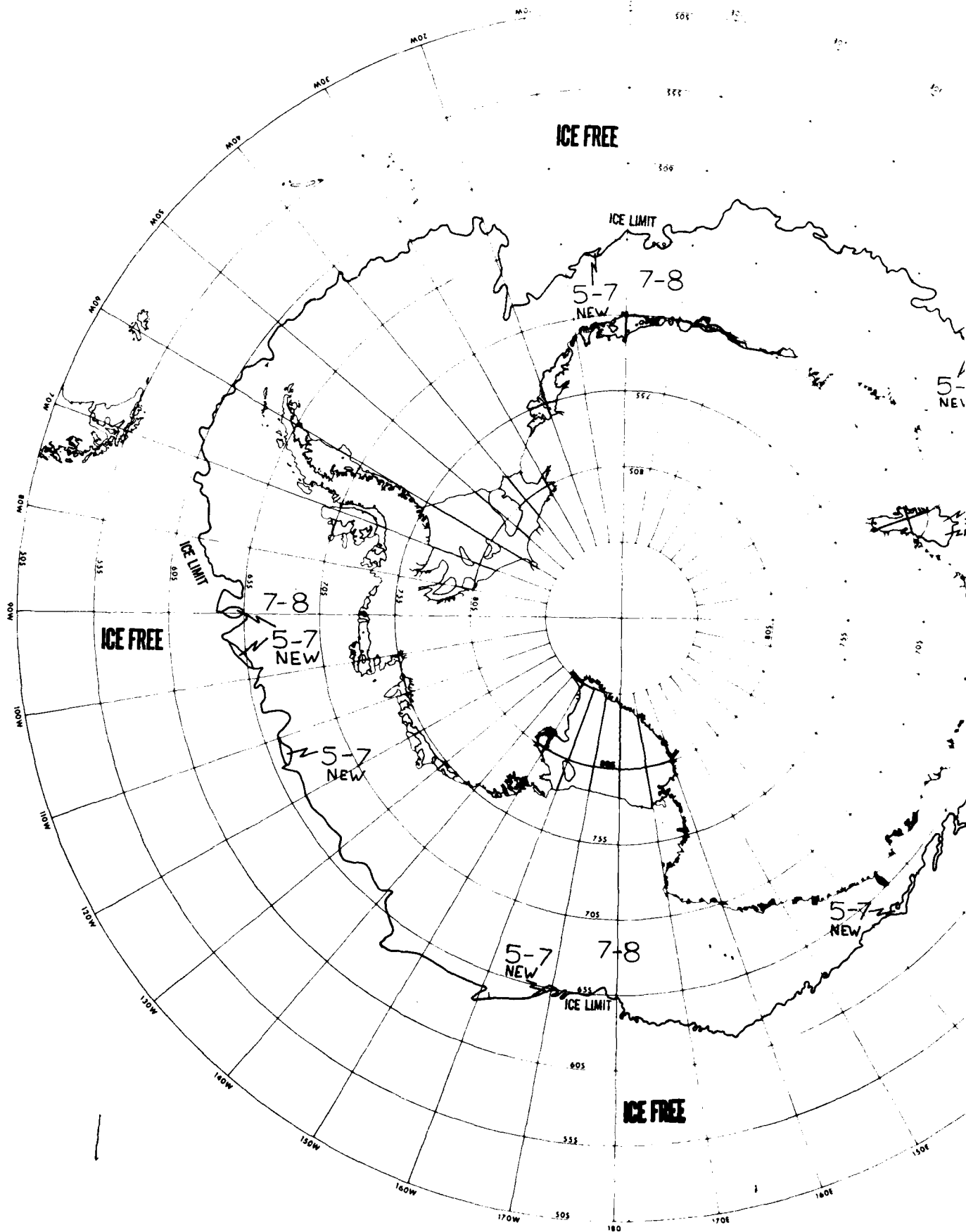
**NORTHERN ICE LIMIT**  
**DATE: 30 JUNE 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 27-30 JUNE**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 20-60 NM FROM EDGE.

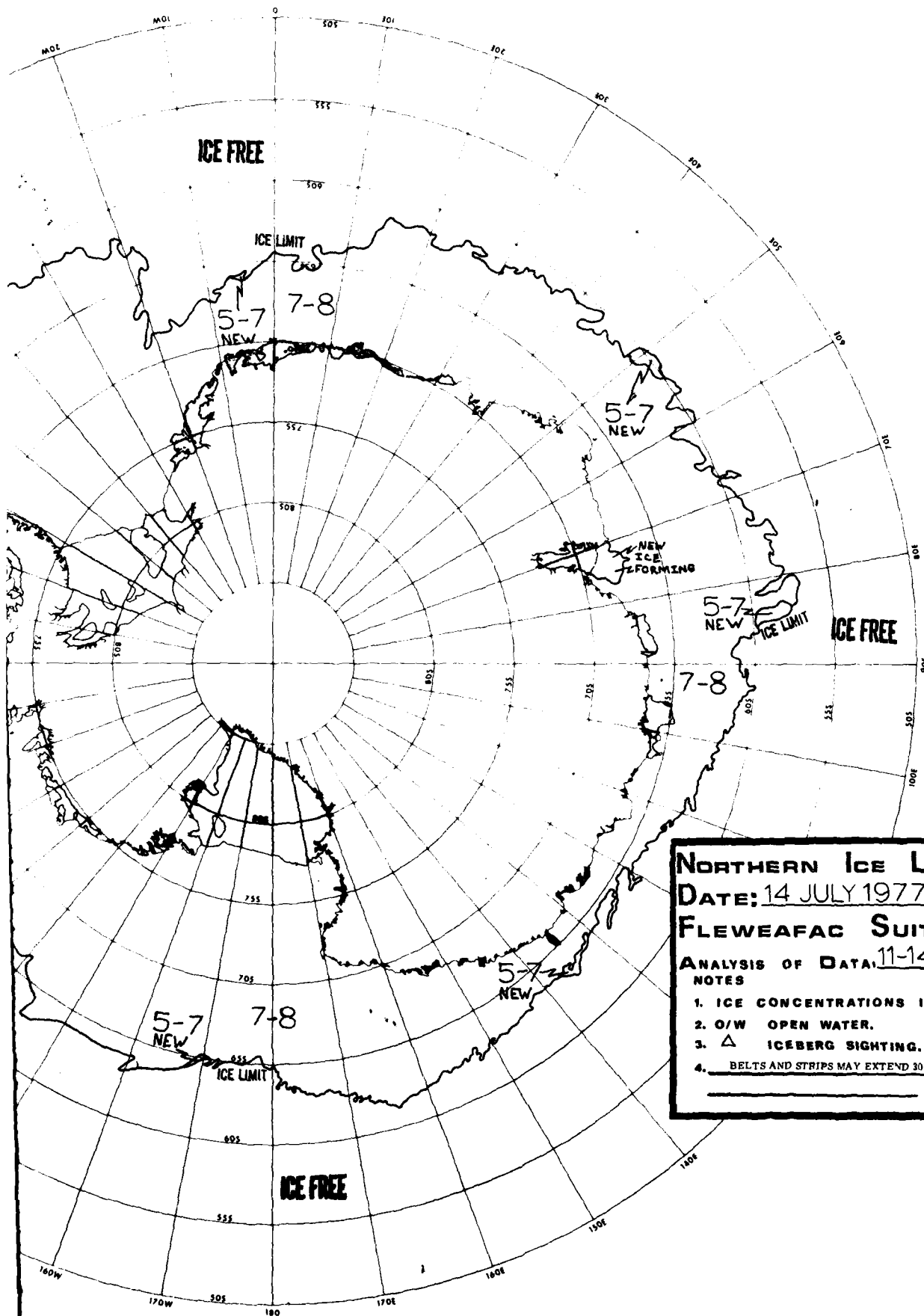
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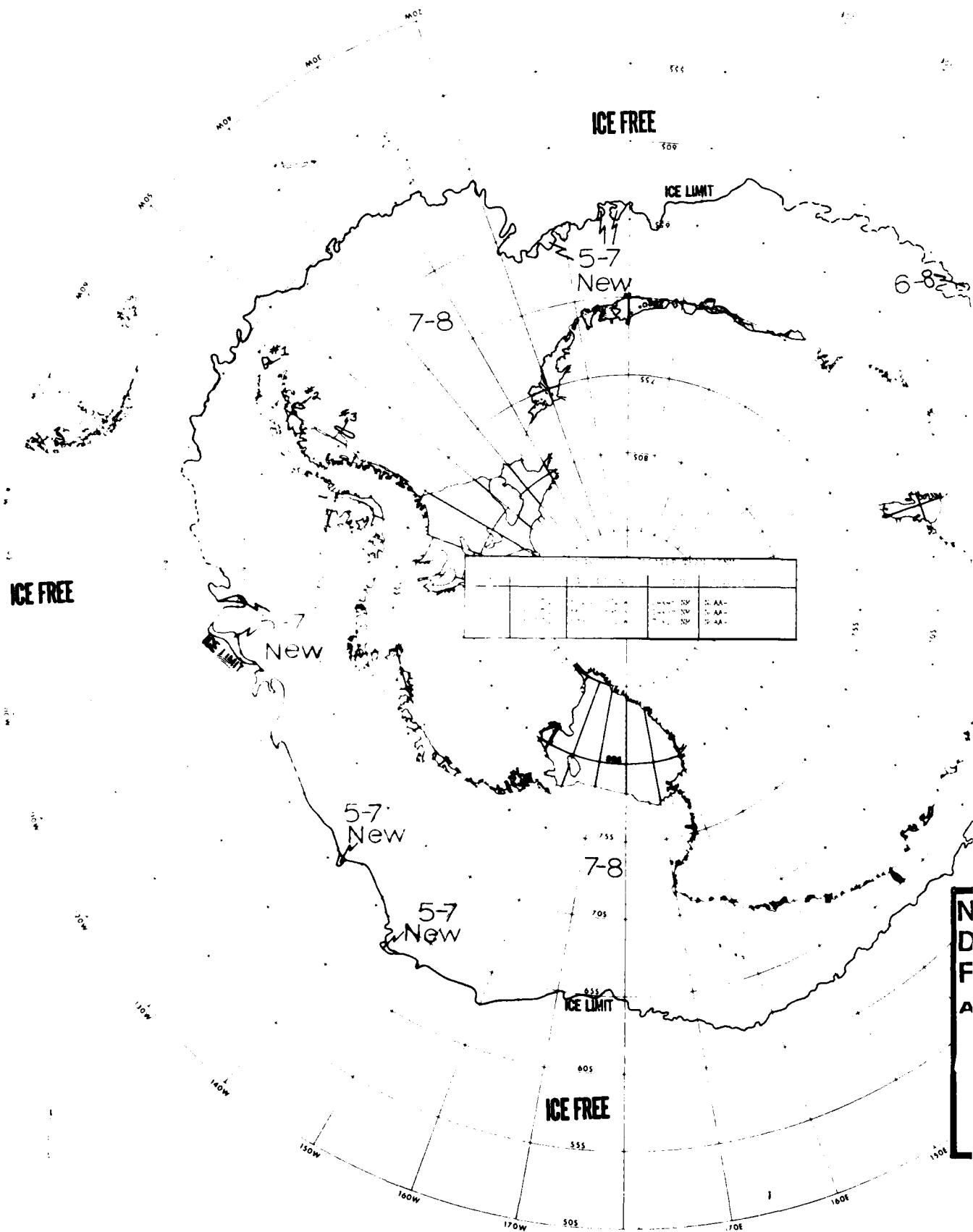


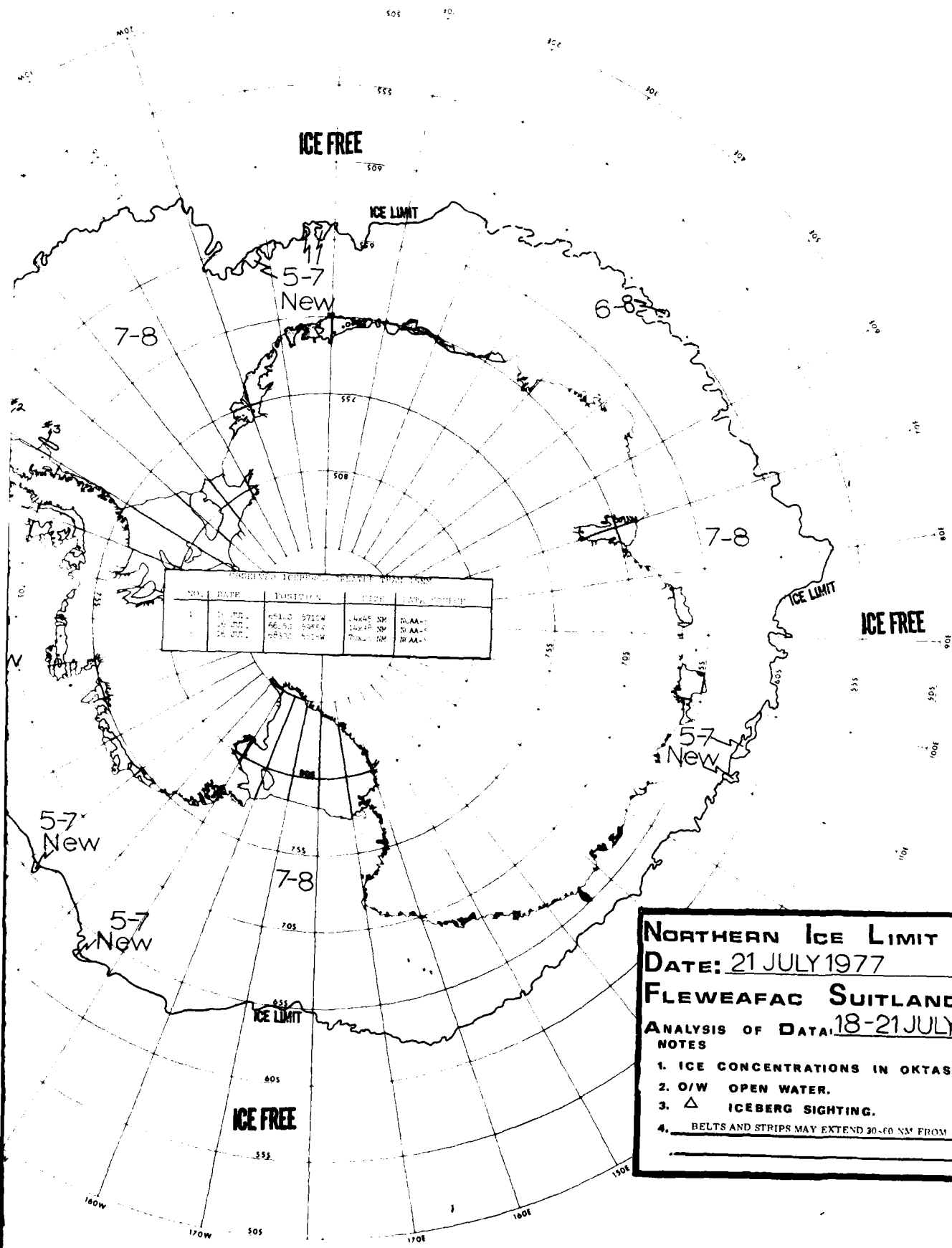


**NORTHERN ICE LIMIT**  
**DATE: 14 JULY 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 11-14 JULY**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2



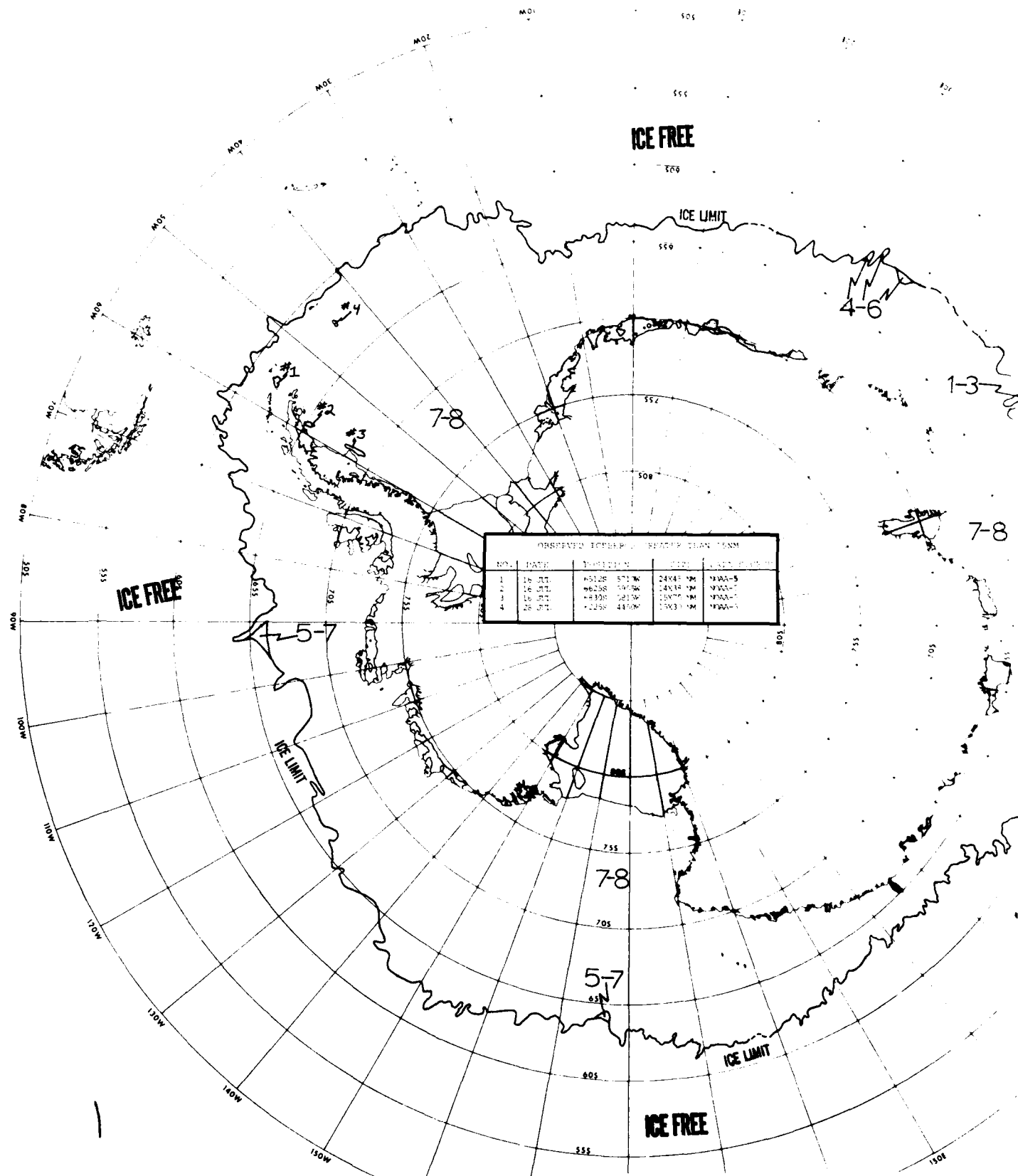


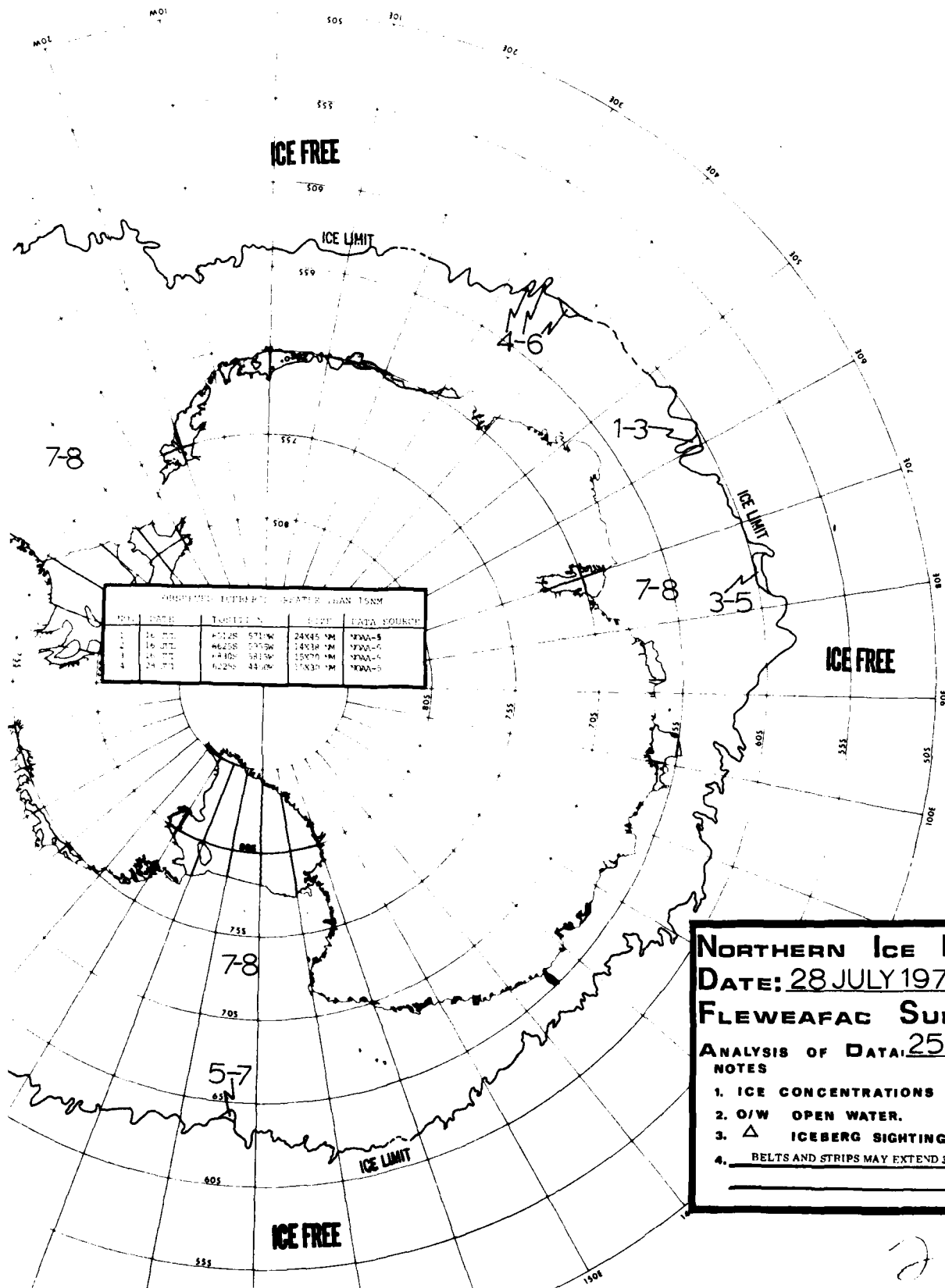


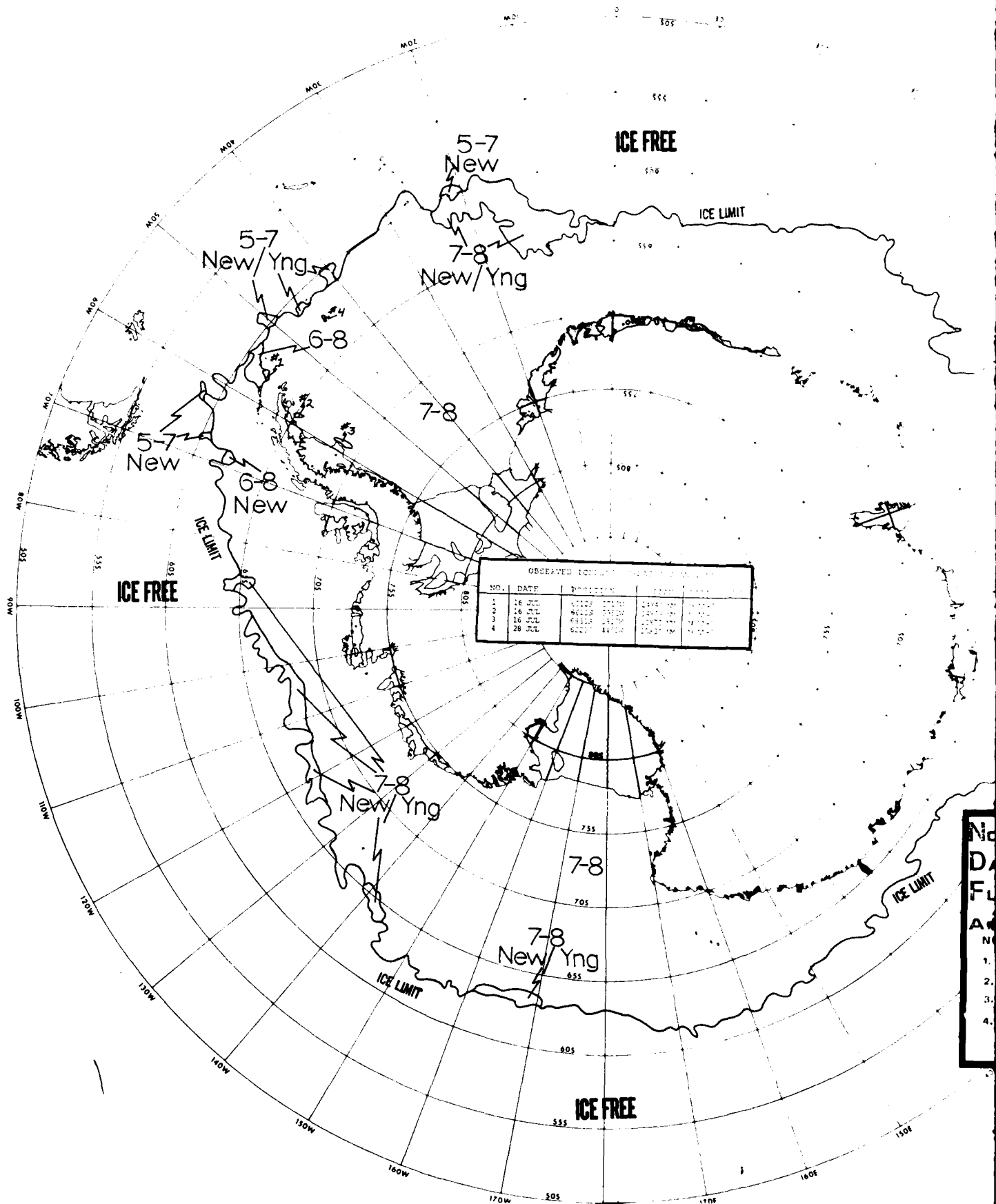
NO.	DATE	POSITION	SIZE	NO. AA
1	21 JUL	651.0 5710W	14x45 NM	20 AA
2	21 JUL	66.00 5442E	14x45 NM	20 AA
3	21 JUL	6510 5710W	14x45 NM	20 AA

**NORTHERN ICE LIMIT**  
**DATE: 21 JULY 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 18-21 JULY**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

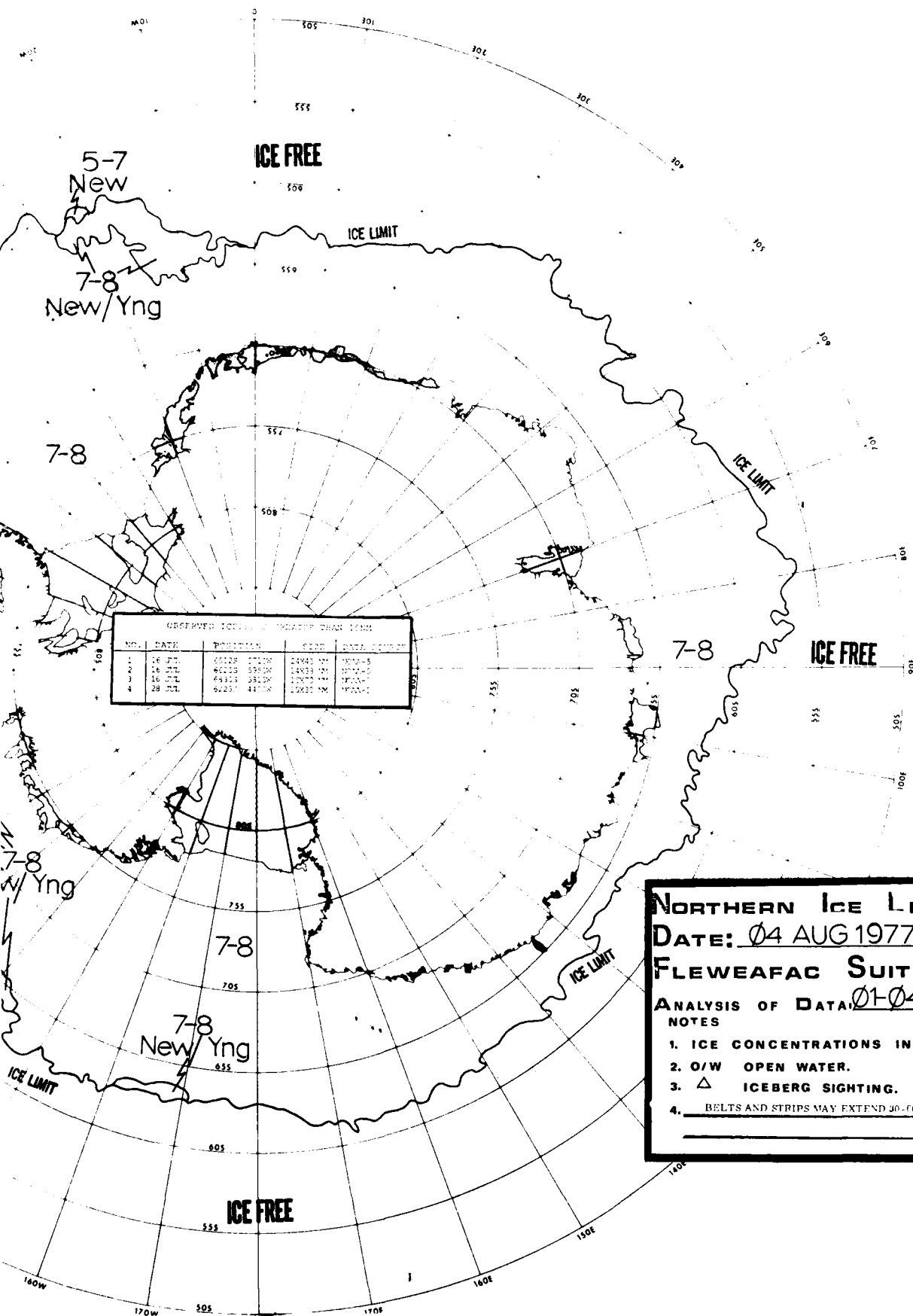
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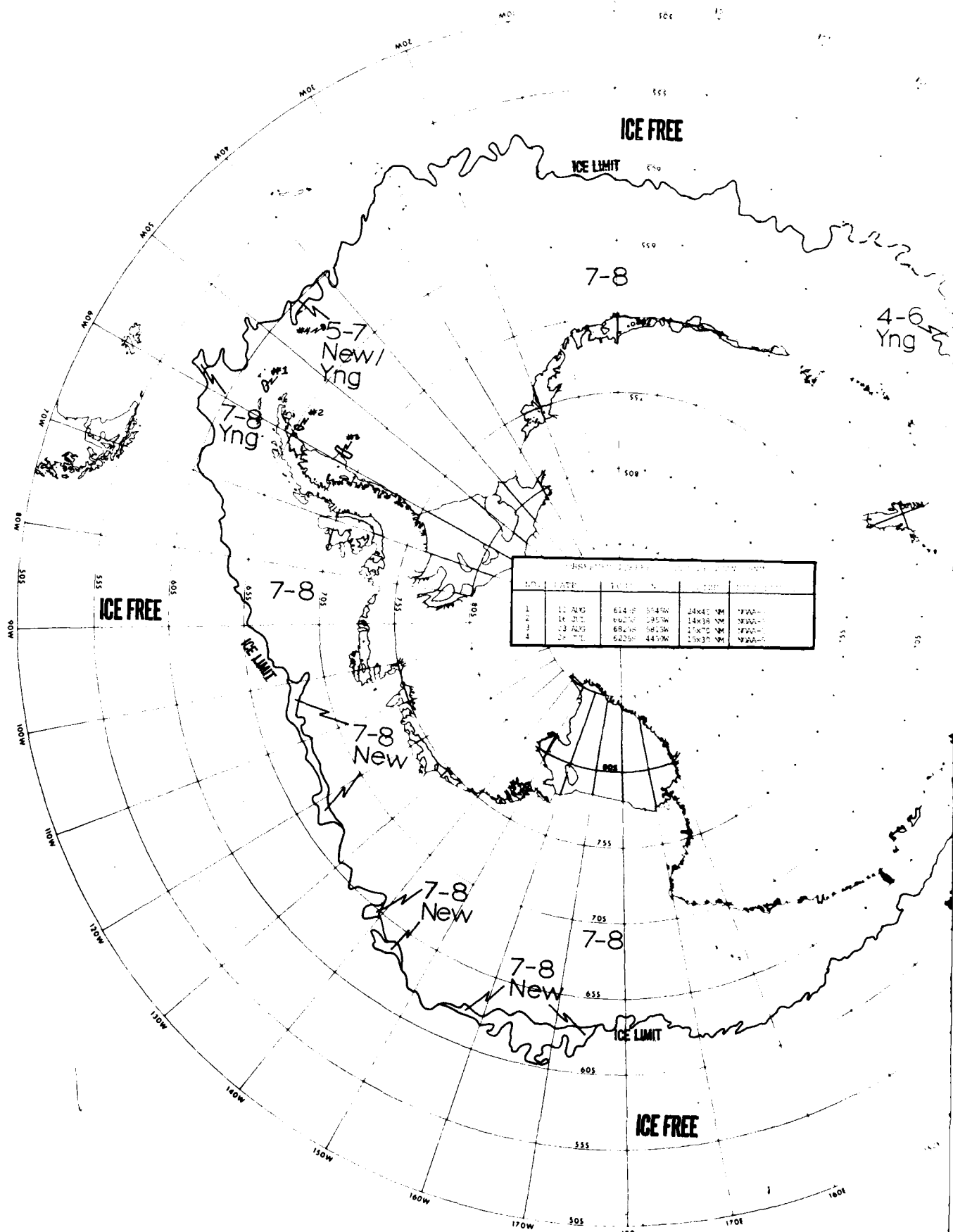


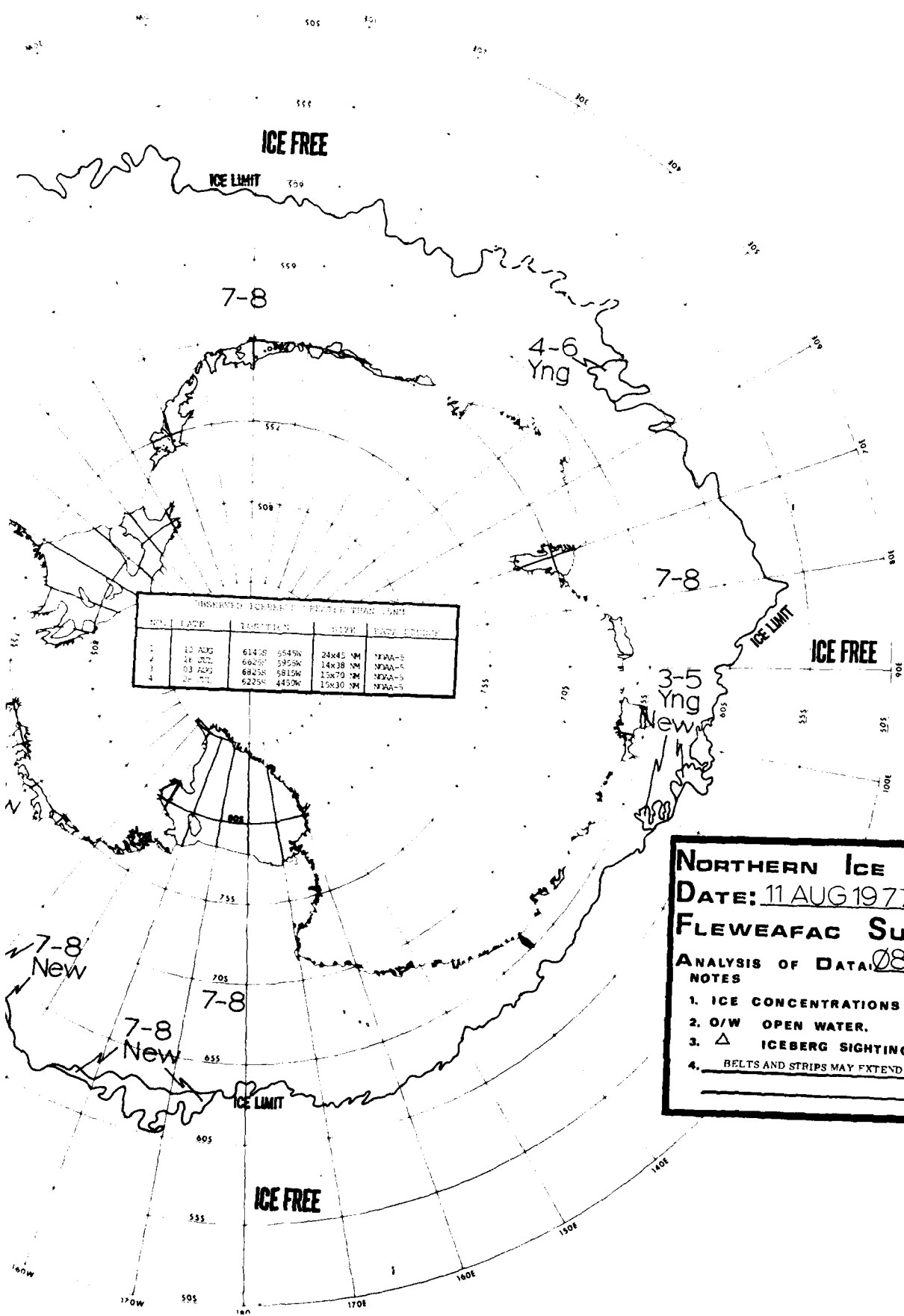


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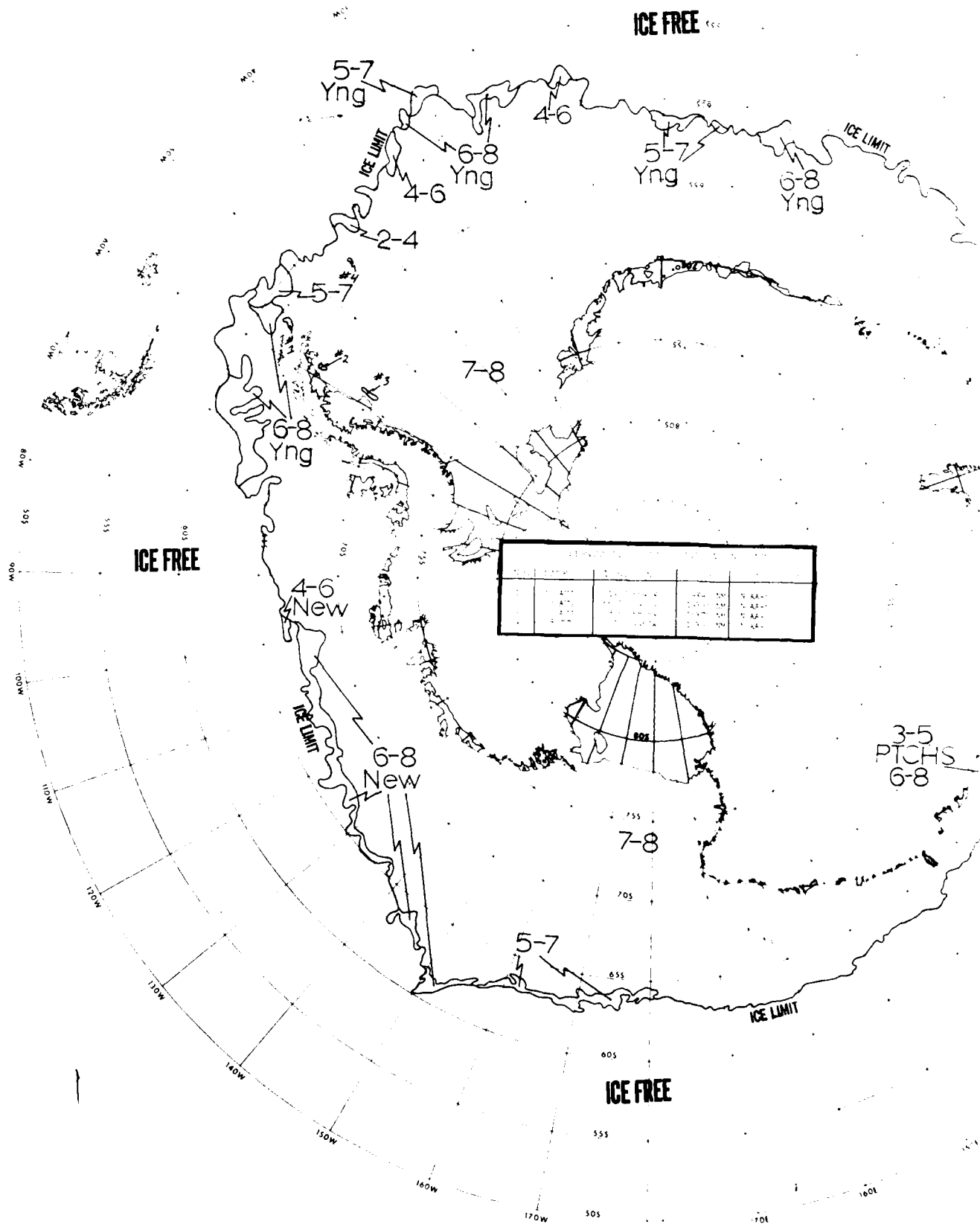
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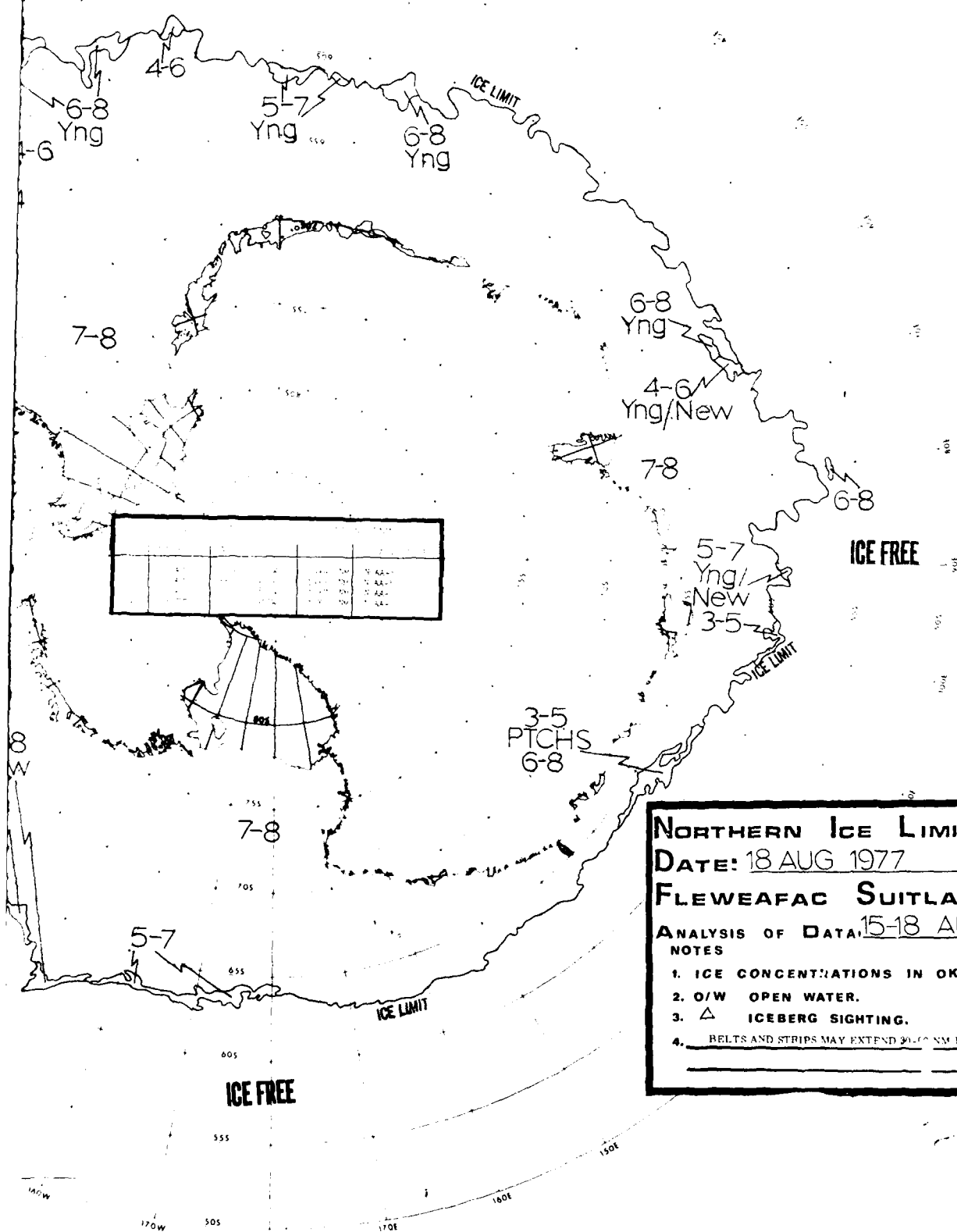


**NORTHERN ICE LIMIT**  
**DATE: 11 AUG 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 08-11 AUG**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS  
 2. O/W OPEN WATER.  
 3. △ ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.





ICE FREE



DATE	TIME	LOCATION	ICE CONCENTRATION	ICEBERG SIGHTING	REMARKS
15 AUG	1000	100E 70S	6-8		
15 AUG	1100	100E 70S	6-8		
15 AUG	1200	100E 70S	6-8		
15 AUG	1300	100E 70S	6-8		
15 AUG	1400	100E 70S	6-8		
15 AUG	1500	100E 70S	6-8		
15 AUG	1600	100E 70S	6-8		
15 AUG	1700	100E 70S	6-8		
15 AUG	1800	100E 70S	6-8		
15 AUG	1900	100E 70S	6-8		
15 AUG	2000	100E 70S	6-8		
15 AUG	2100	100E 70S	6-8		
15 AUG	2200	100E 70S	6-8		
15 AUG	2300	100E 70S	6-8		
15 AUG	2400	100E 70S	6-8		
15 AUG	2500	100E 70S	6-8		
15 AUG	2600	100E 70S	6-8		
15 AUG	2700	100E 70S	6-8		
15 AUG	2800	100E 70S	6-8		
15 AUG	2900	100E 70S	6-8		
15 AUG	3000	100E 70S	6-8		

# NORTHERN ICE LIMIT

DATE: 18 AUG 1977

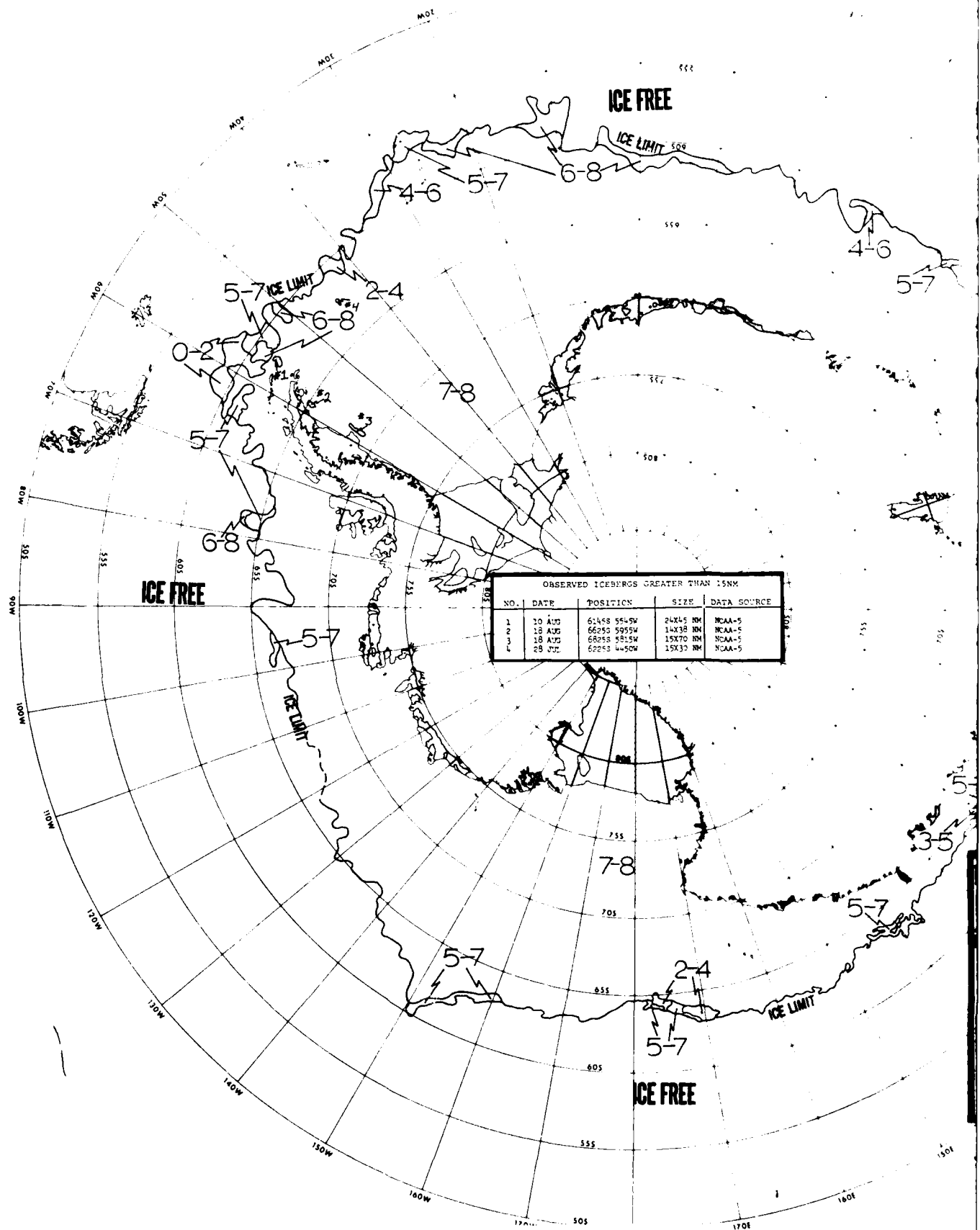
FLEWEAFAC SUITLAND

ANALYSIS OF DATA: 15-18 AUG

## NOTES

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3. Δ ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2



ICE FREE

ICE LIMIT

6 5-7

6-8

4-6

5-7

7-8

5-7

ICE FREE

6-8

3-5

5-7

5-7

5-7

2-4

ICE FREE

OBSERVED ICEBERGS GREATER THAN 15NM

NO.	DATE	POSITION	SIZE	DATA SOURCE
1	10 AUG	61458 5545W	24X45 NM	NCAA-5
2	18 AUG	66255 5955W	14X38 NM	NCAA-5
3	18 AUG	68255 5815W	15X70 NM	NCAA-5
4	28 JUL	62255 4450W	15X30 NM	NCAA-5

NORTHERN ICE LIMIT

DATE: 25 AUG 1977

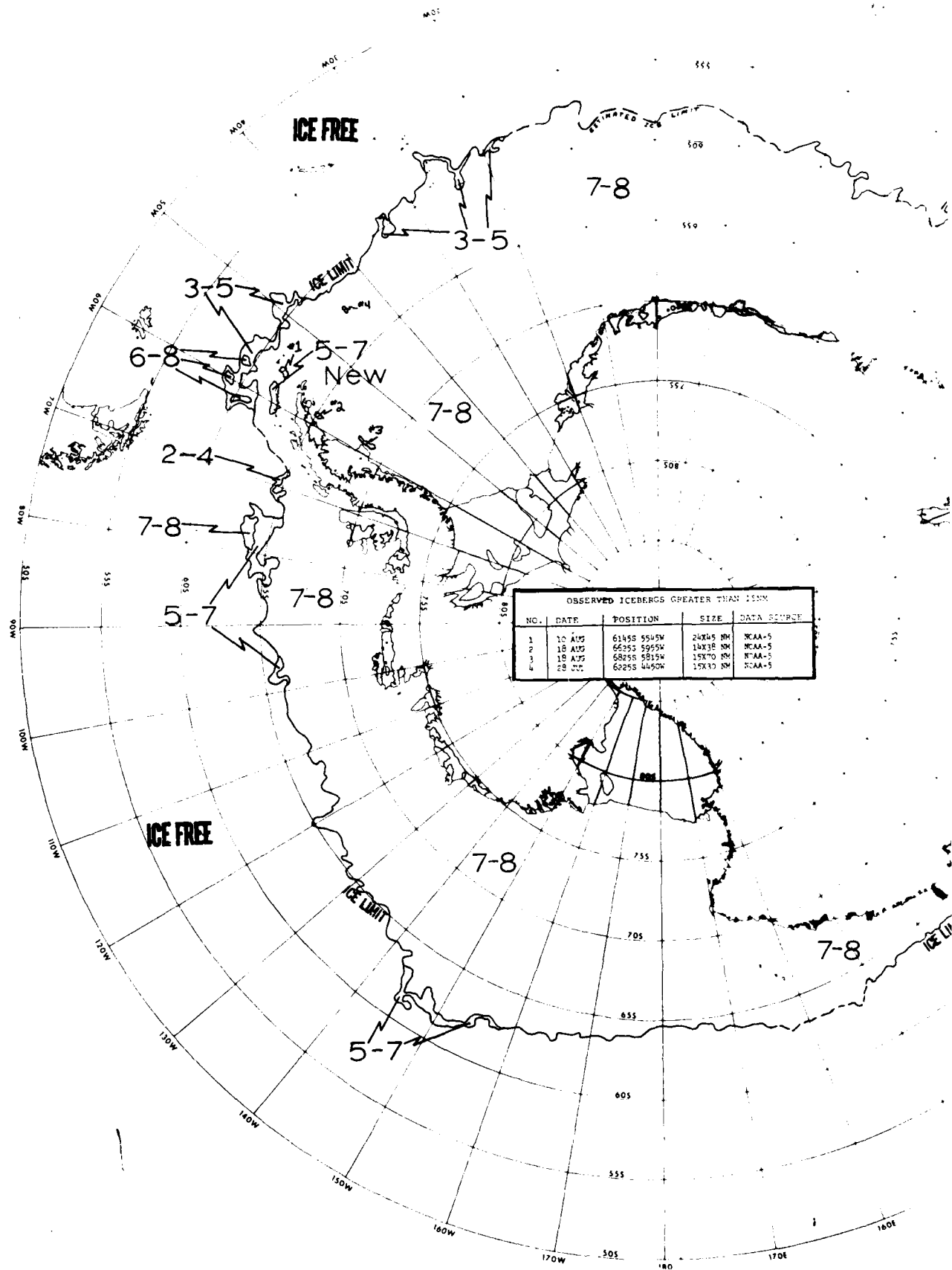
FLEWEAFAC SUTLAND

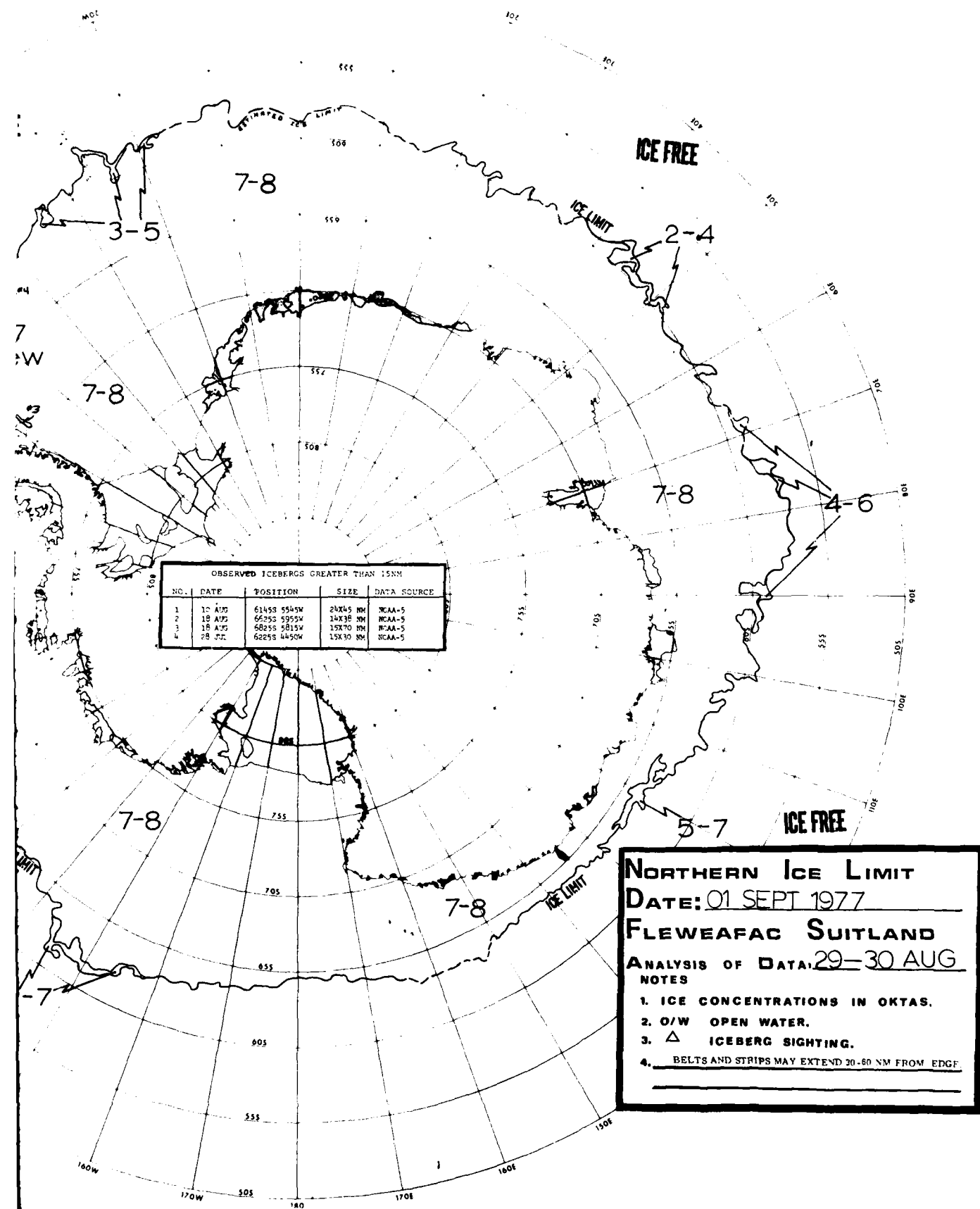
ANALYSIS OF DATA: 22-25 AUG

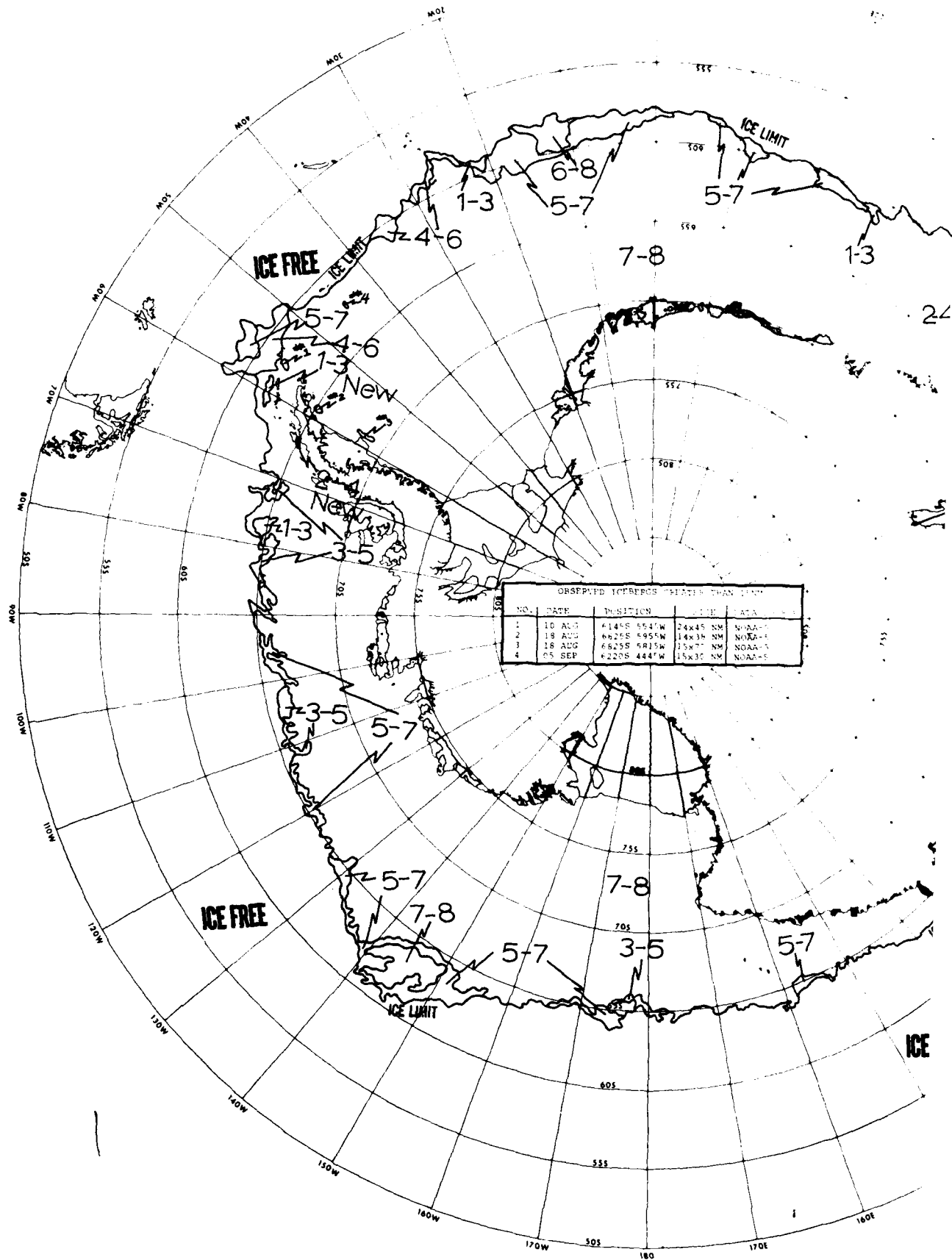
NOTES

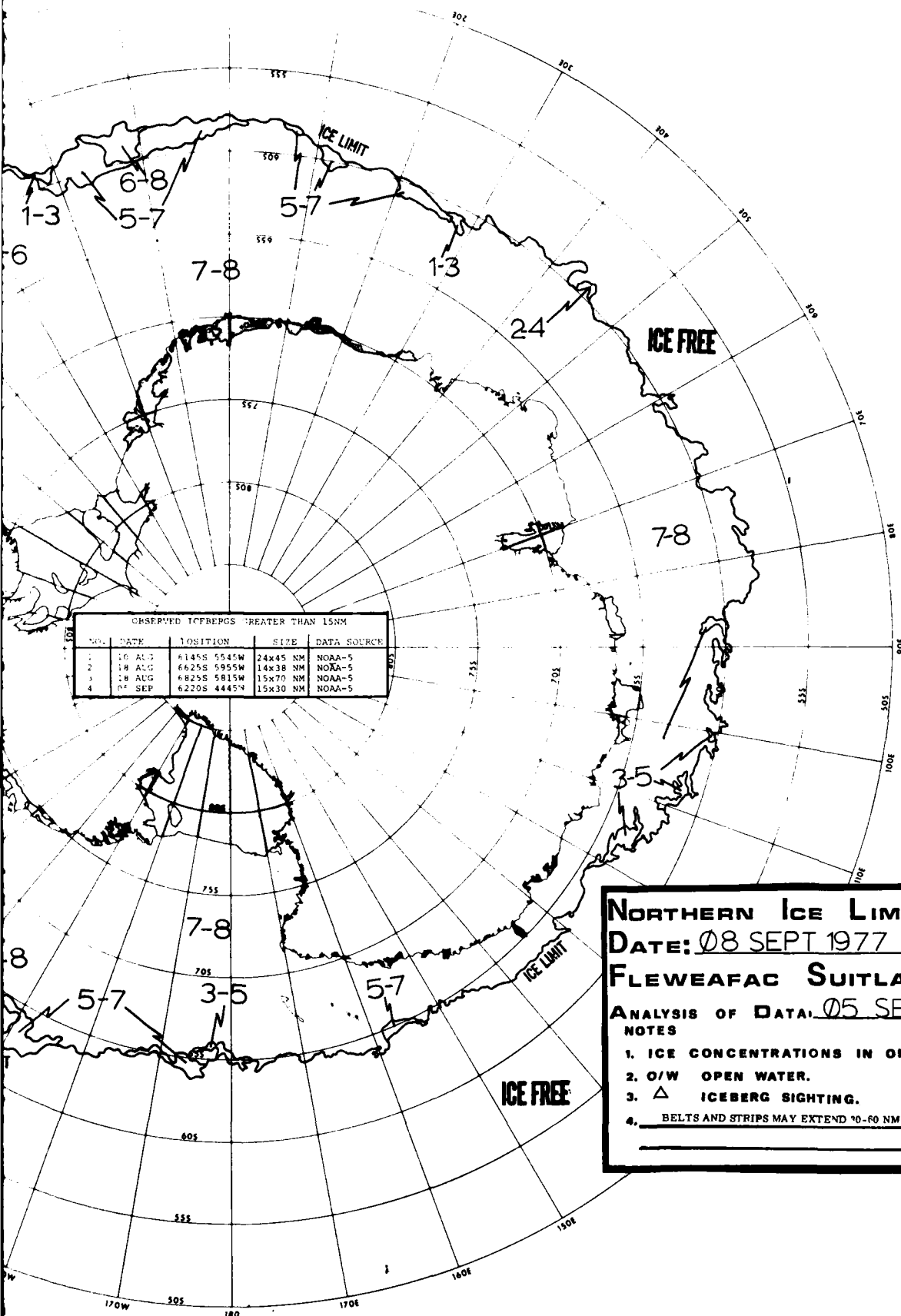
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3. Δ ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2





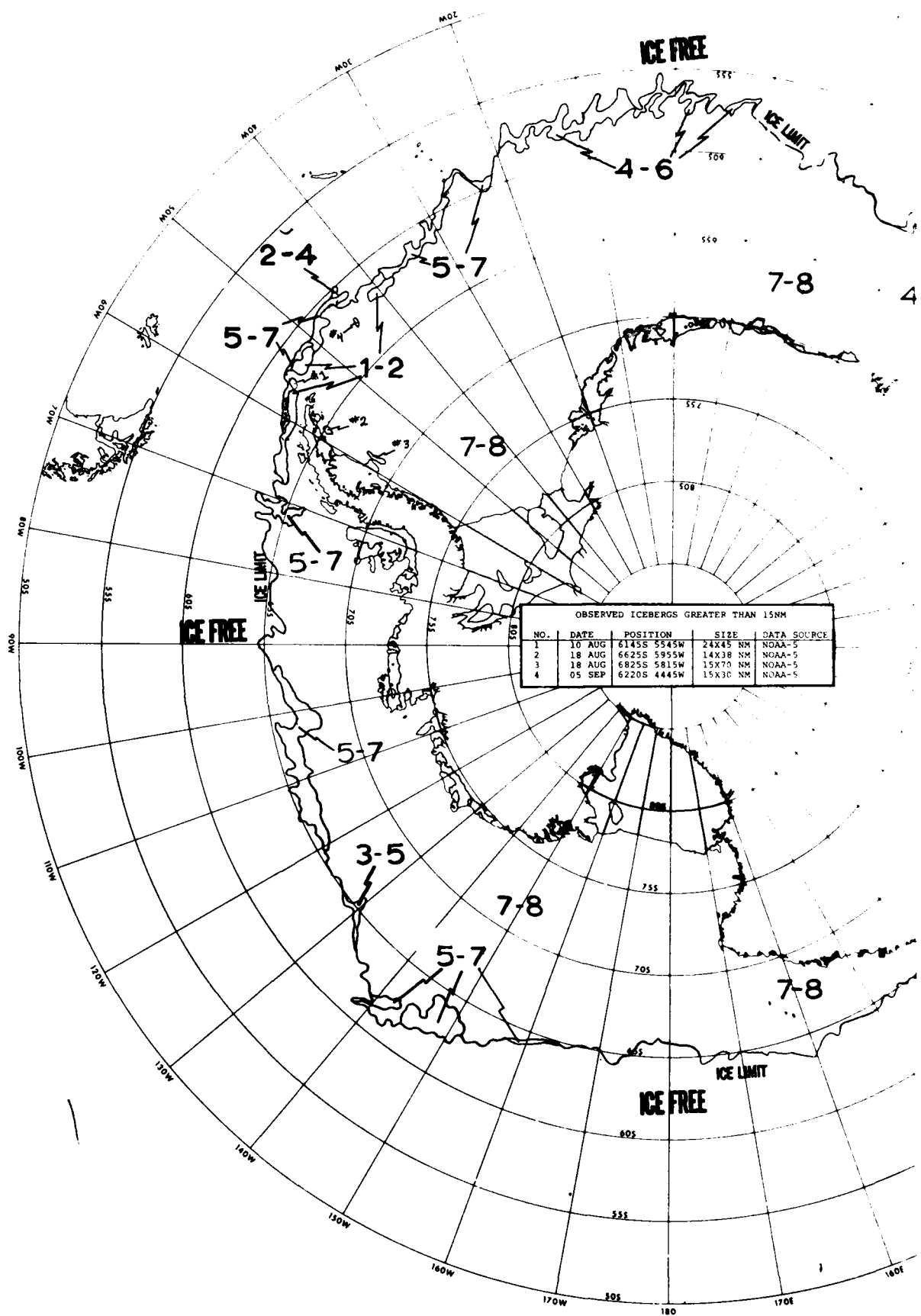


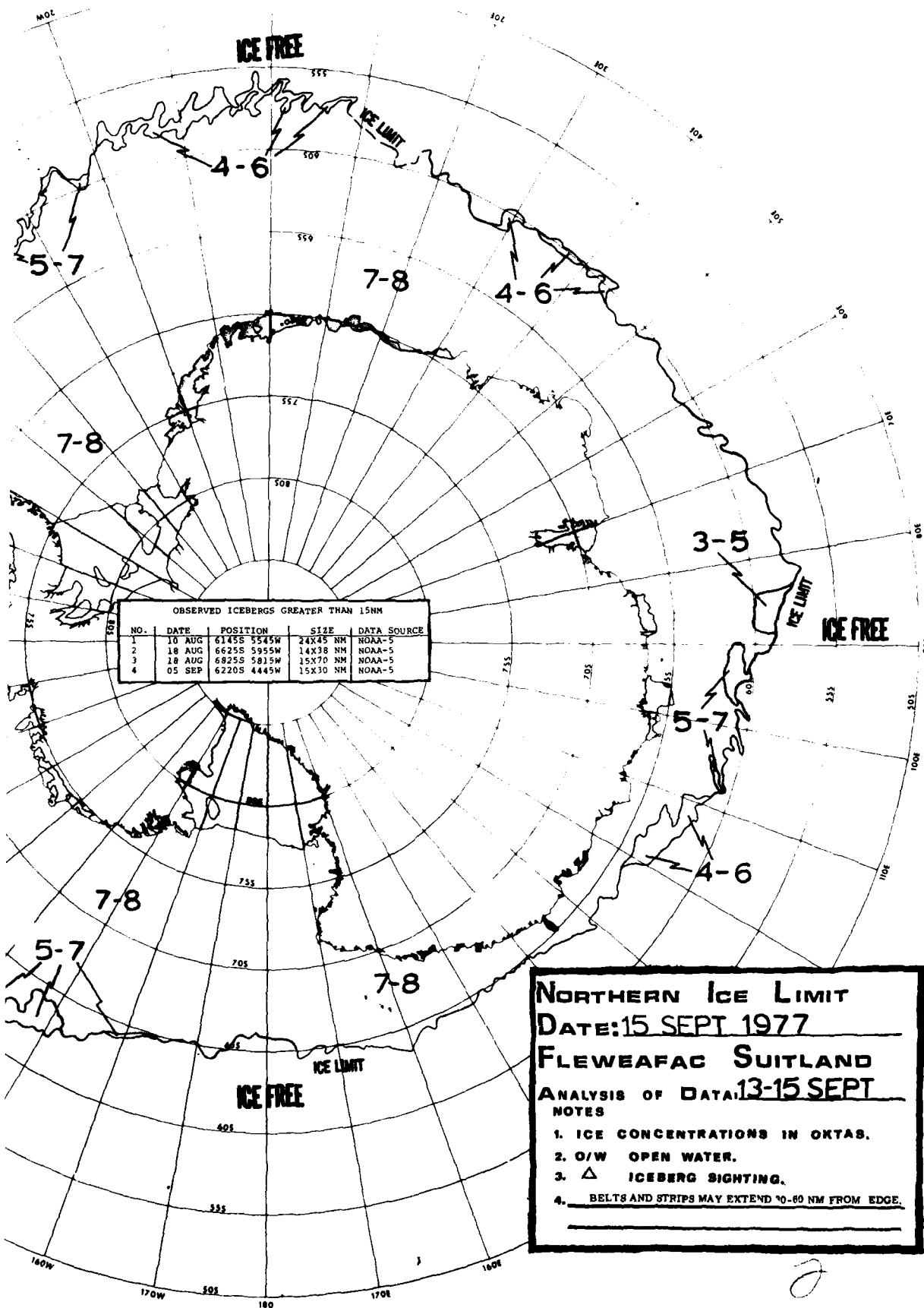


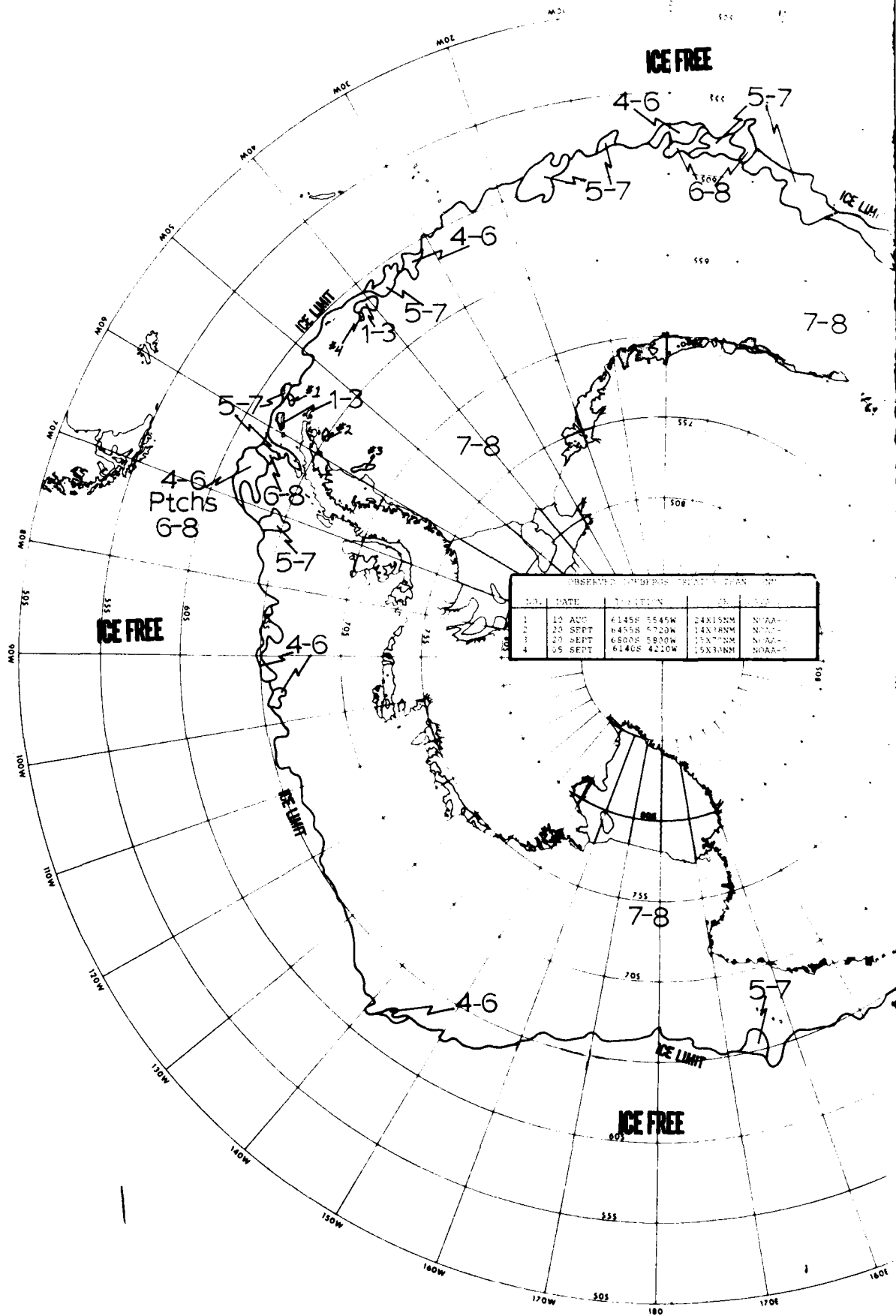
**NORTHERN ICE LIMIT**  
**DATE: 08 SEPT 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 05 SEPT**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3. Δ ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 20-60 NM FROM EDGE.

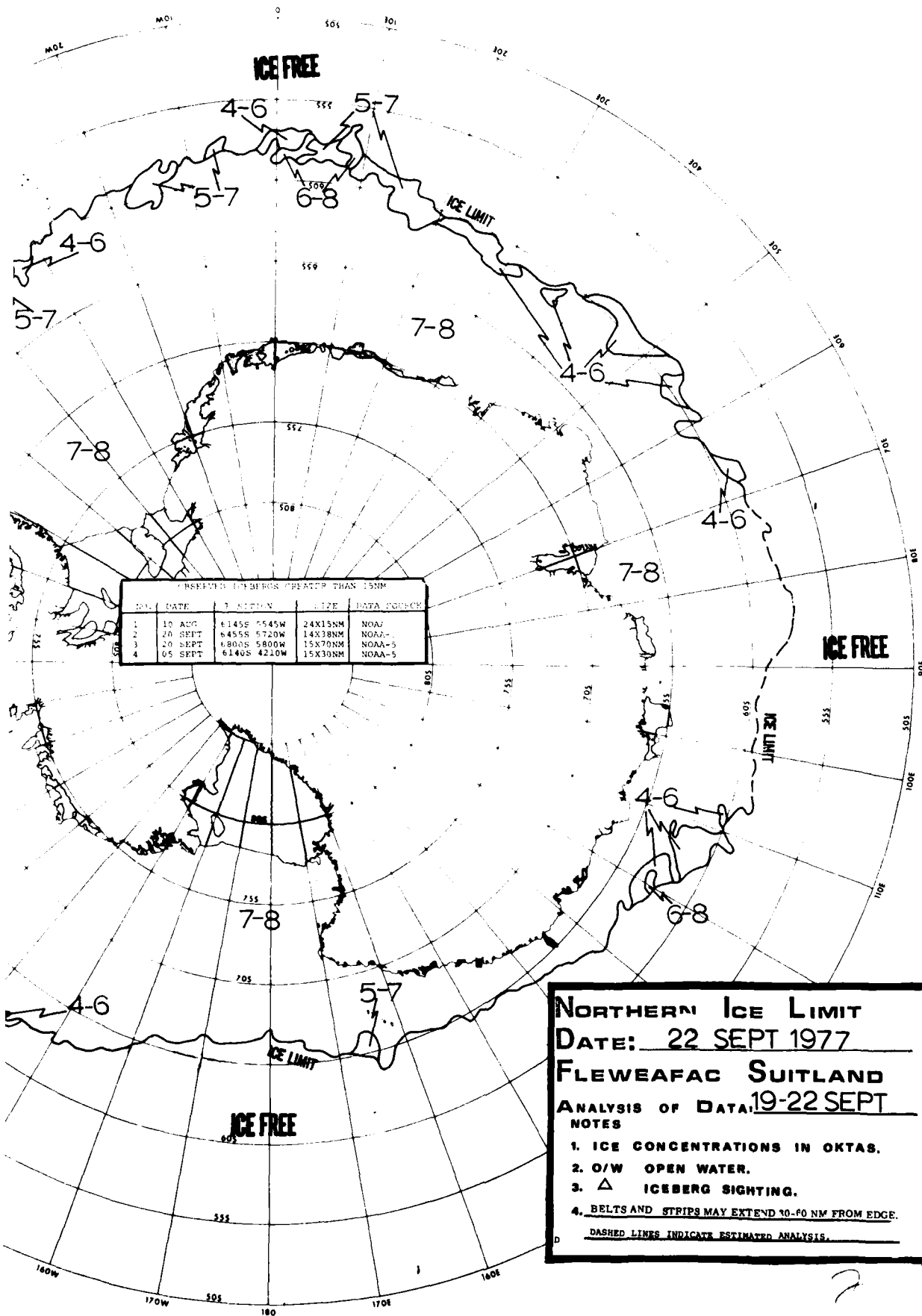
2

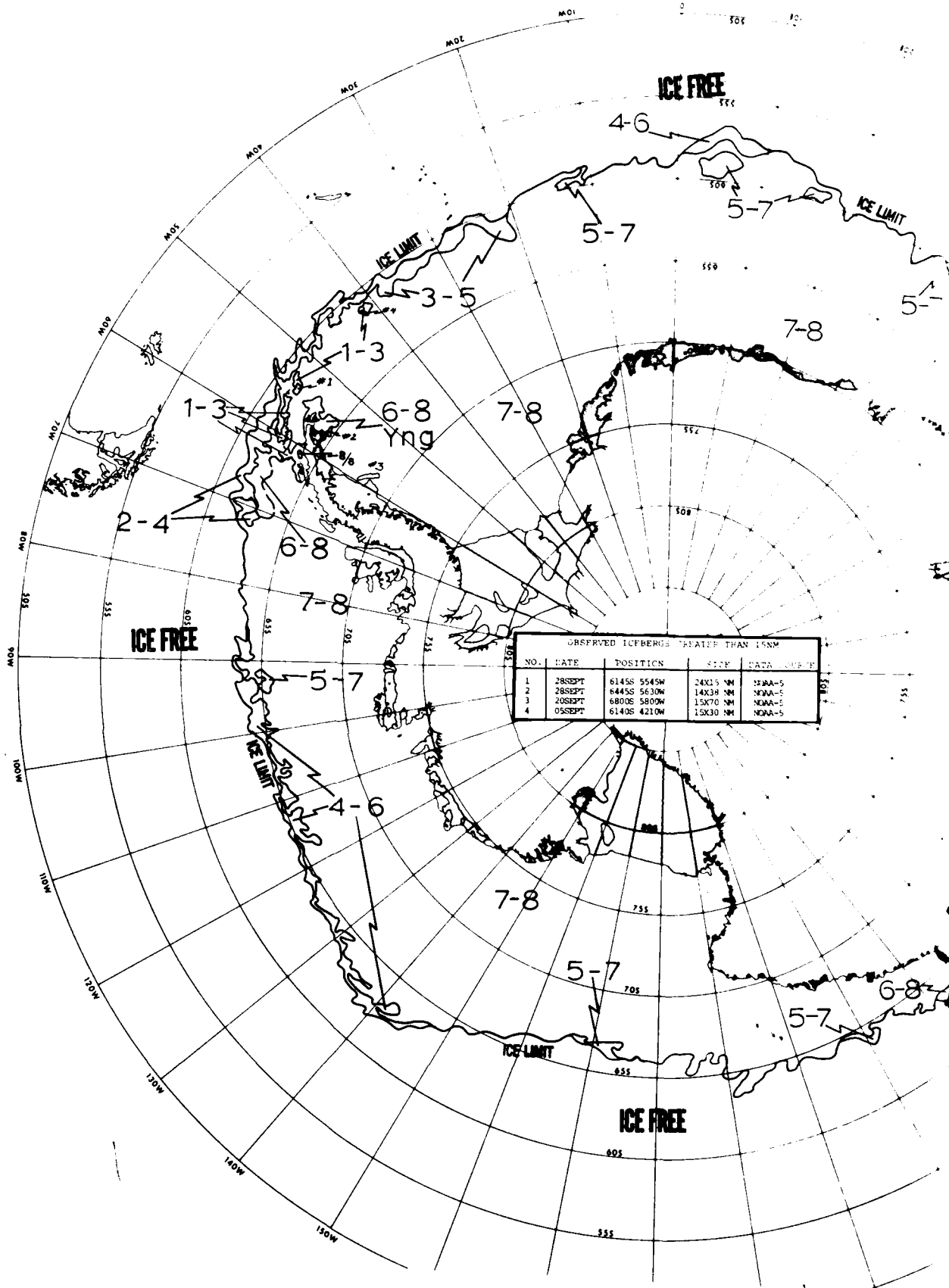


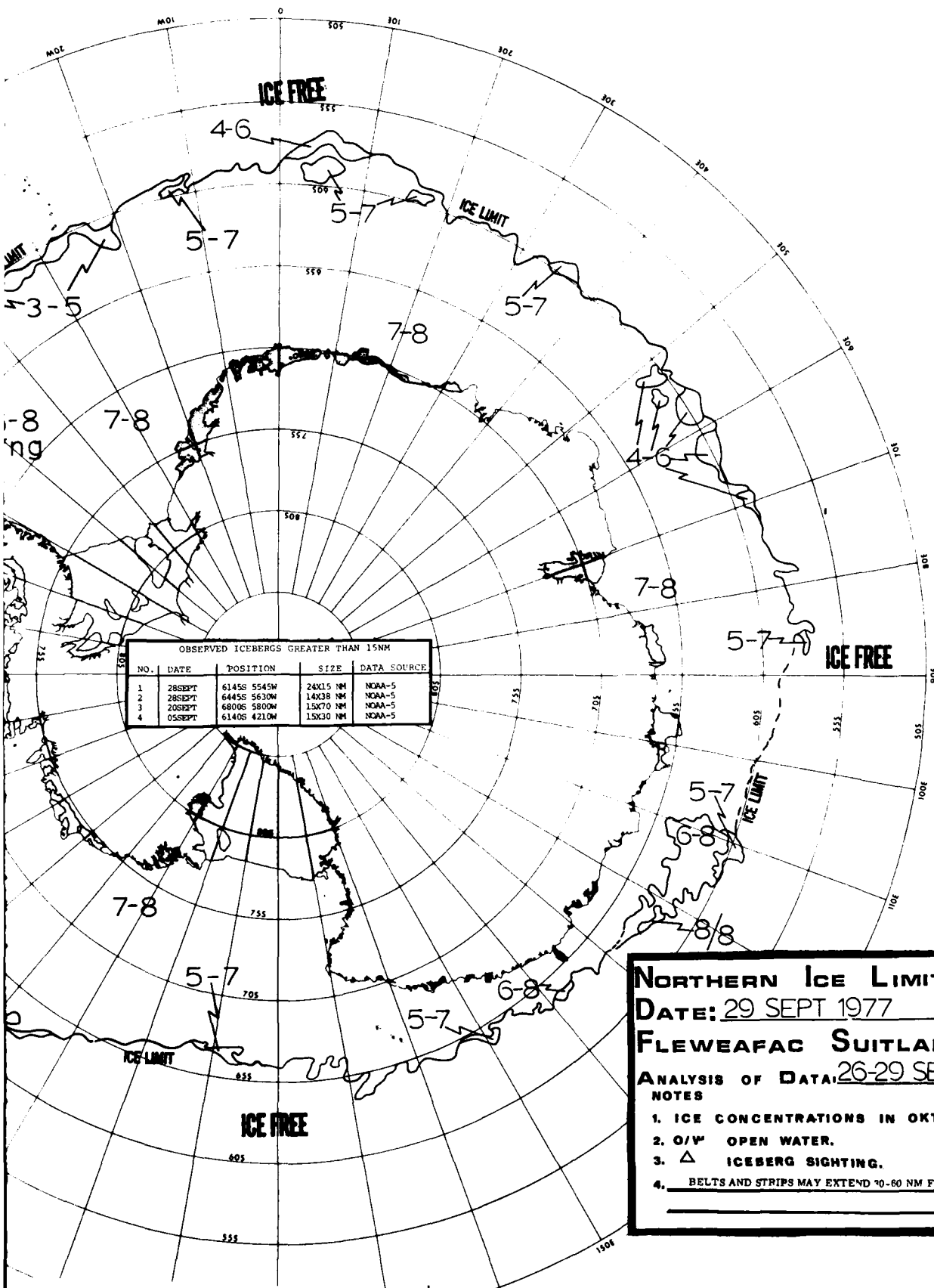




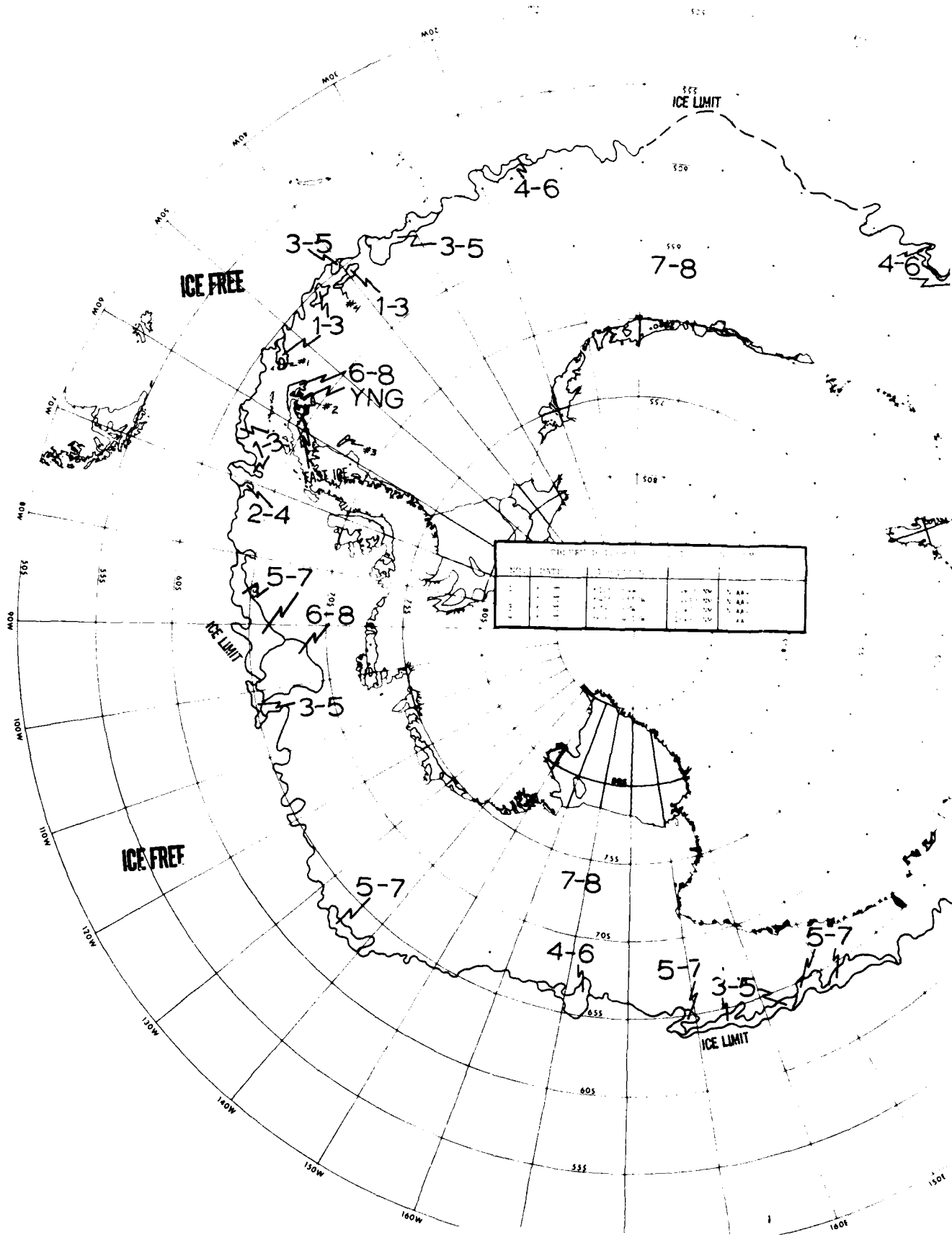


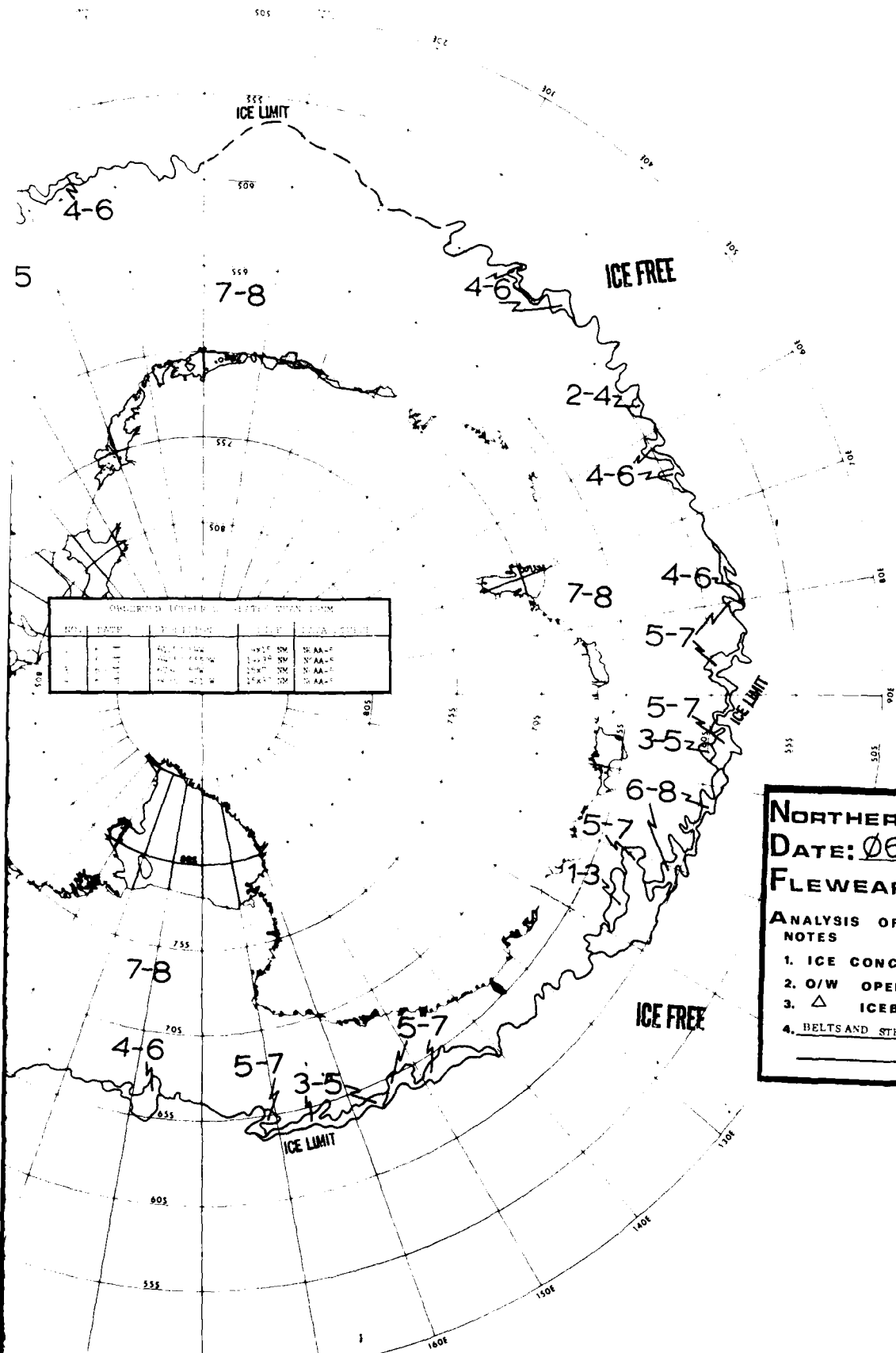






2





# **NORTHERN ICE LIMIT**

**DATE: 06 OCT 1977**

**FLEWEAFAC SUITLAND**

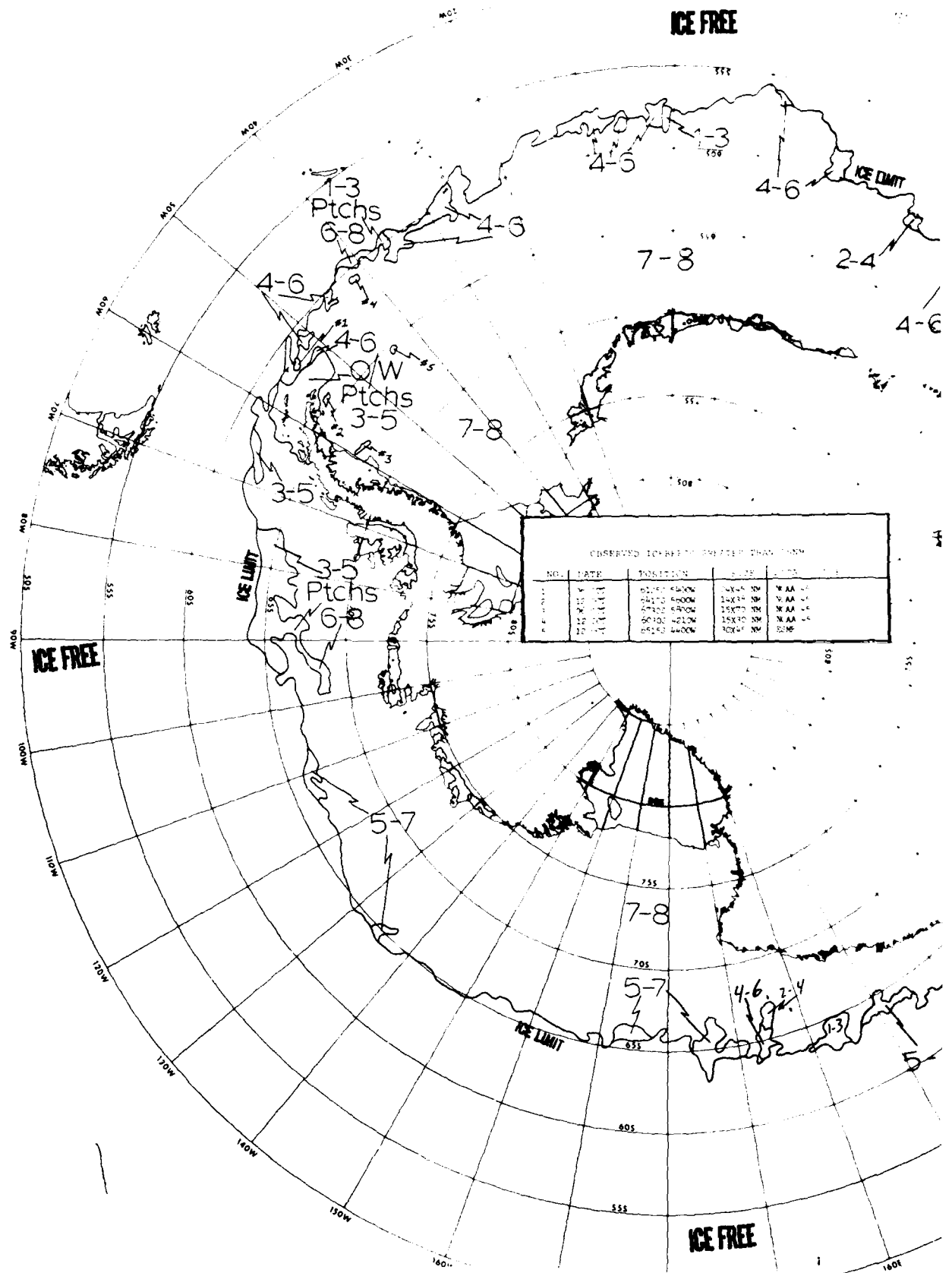
**ANALYSIS OF DATA: 03-06 OCT**

## **NOTES**

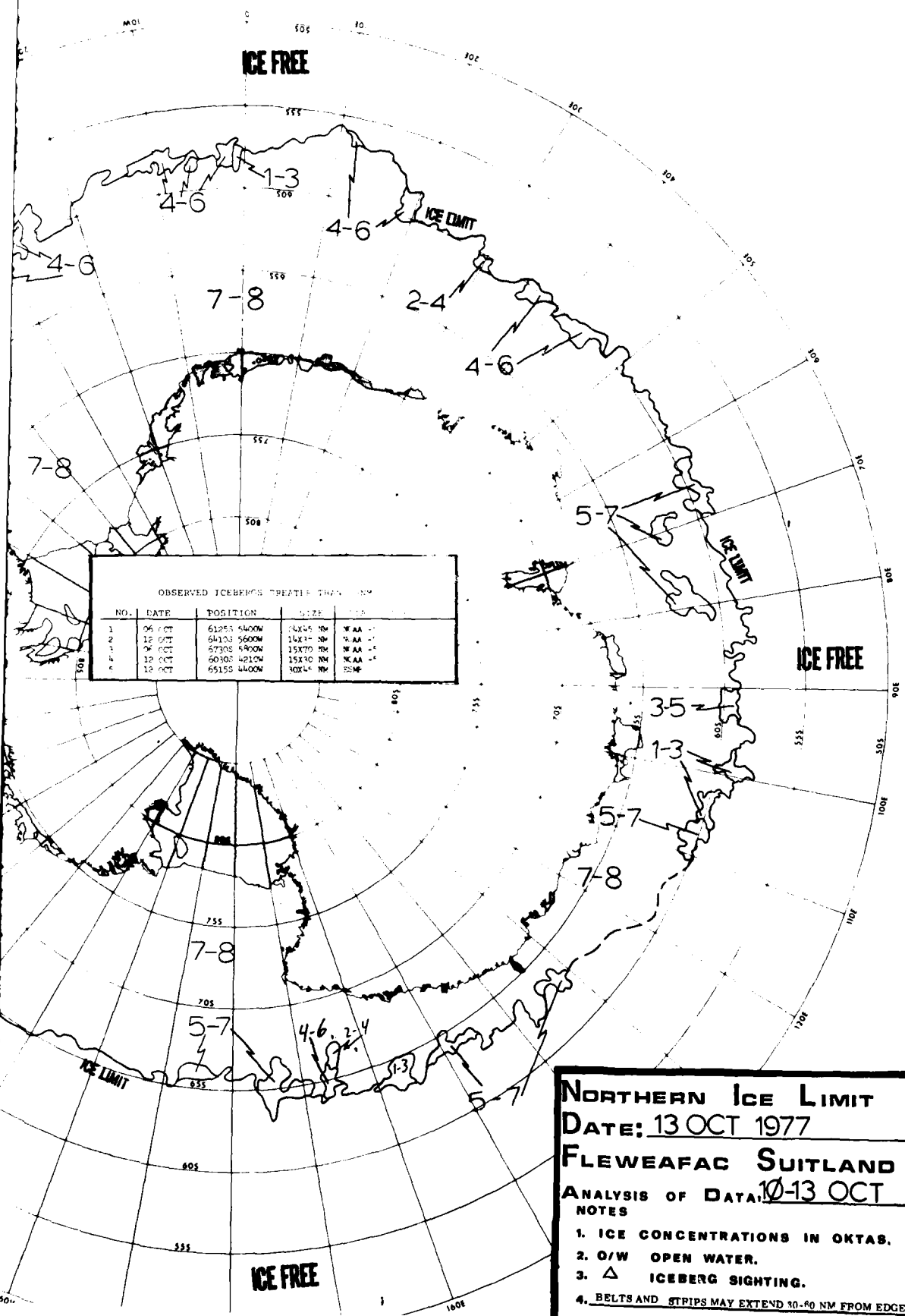
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

Q





ICE FREE



OBSERVED ICEBERG TREATIES 1977

NO.	DATE	POSITION	SIZE	TYPE
1	06 OCT	61253 5400W	24X45 NM	WAA -
2	12 OCT	54133 5600W	14X17 NM	WAA -
3	06 OCT	57305 5900W	15X70 NM	WAA -
4	12 OCT	60305 4210W	15X30 NM	WAA -
5	12 OCT	65159 4400W	40X54 NM	SSM -

# NORTHERN ICE LIMIT

DATE: 13 OCT 1977

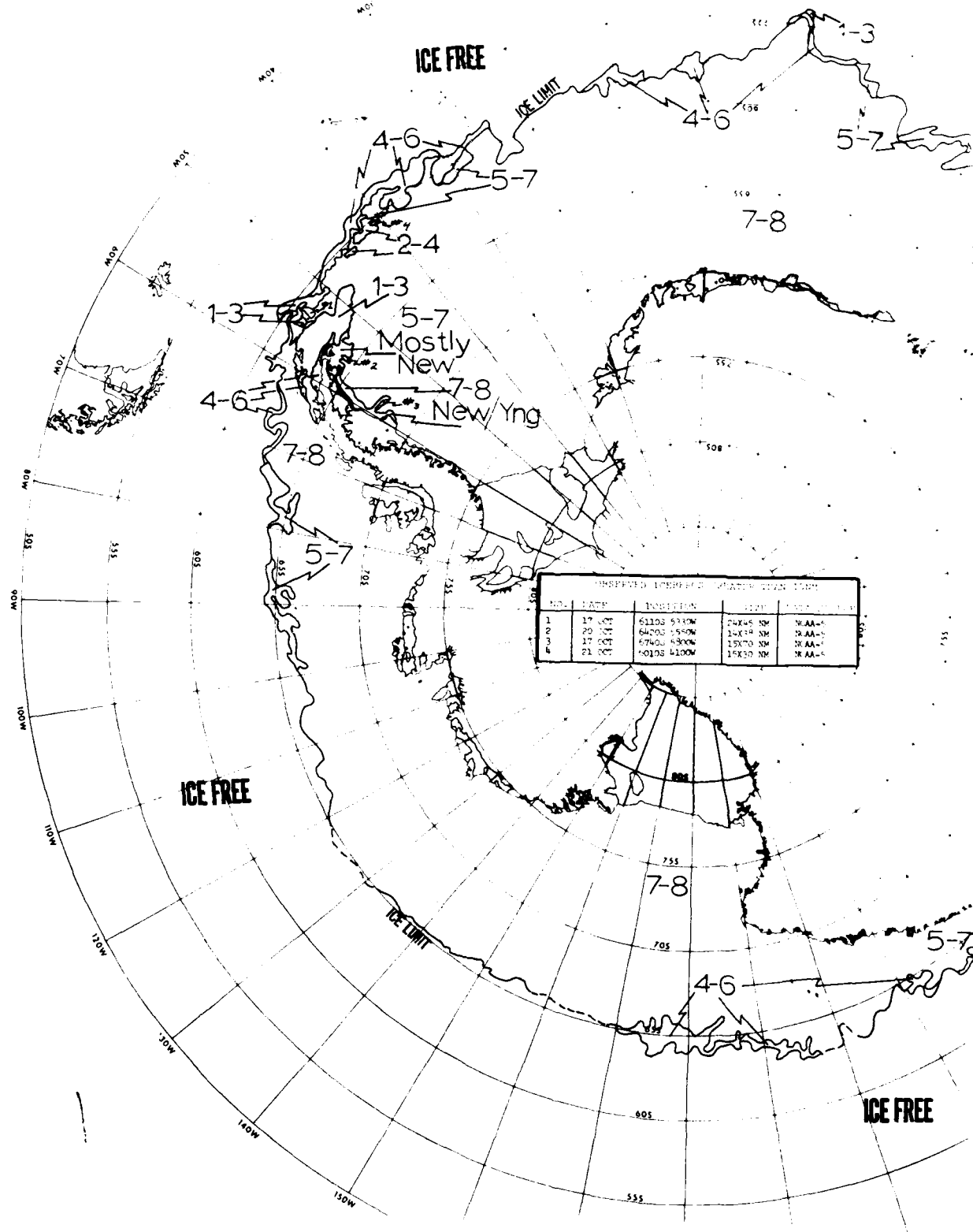
FLEWEAFAC SUITLAND

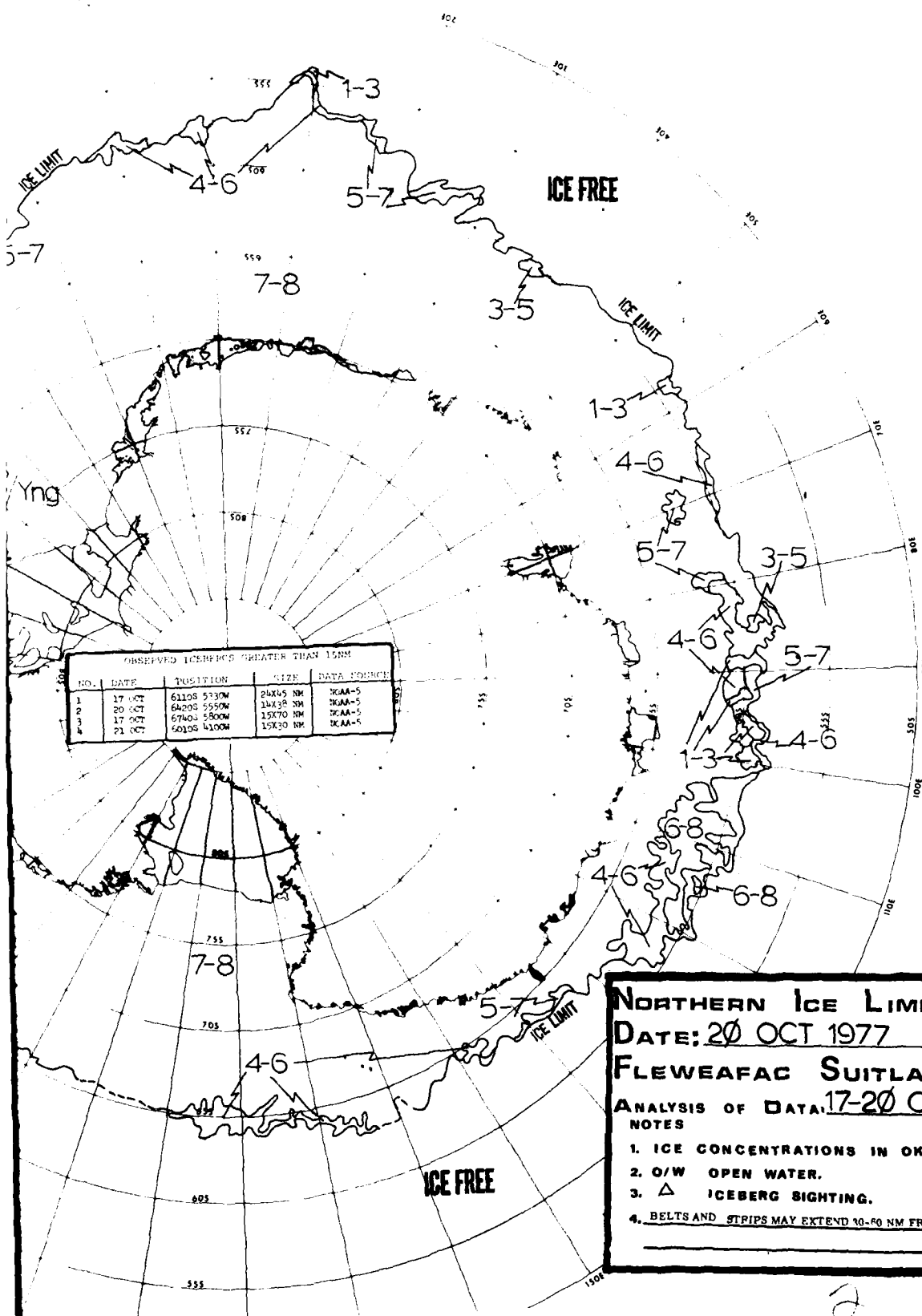
ANALYSIS OF DATA: 10-13 OCT

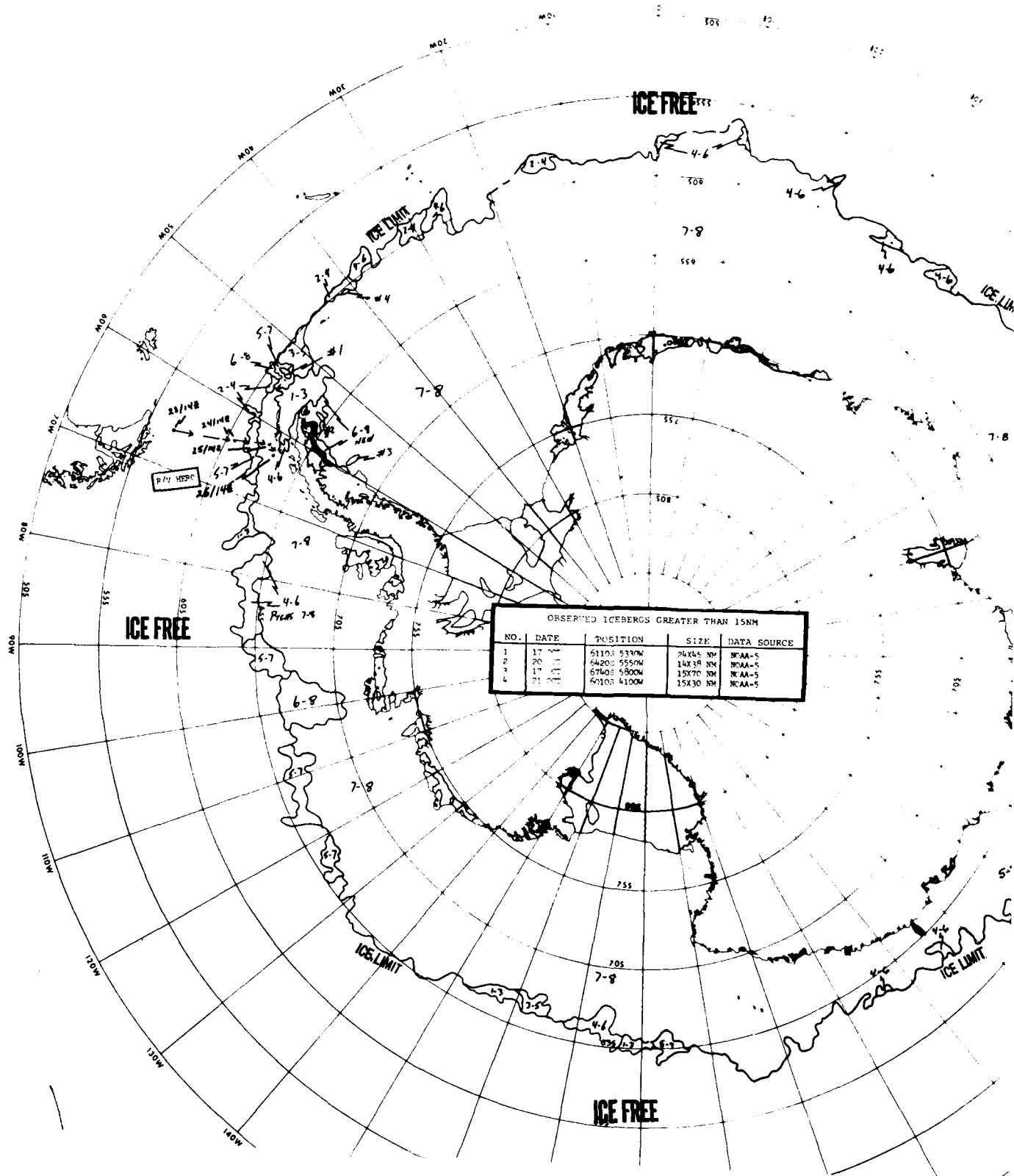
## NOTES

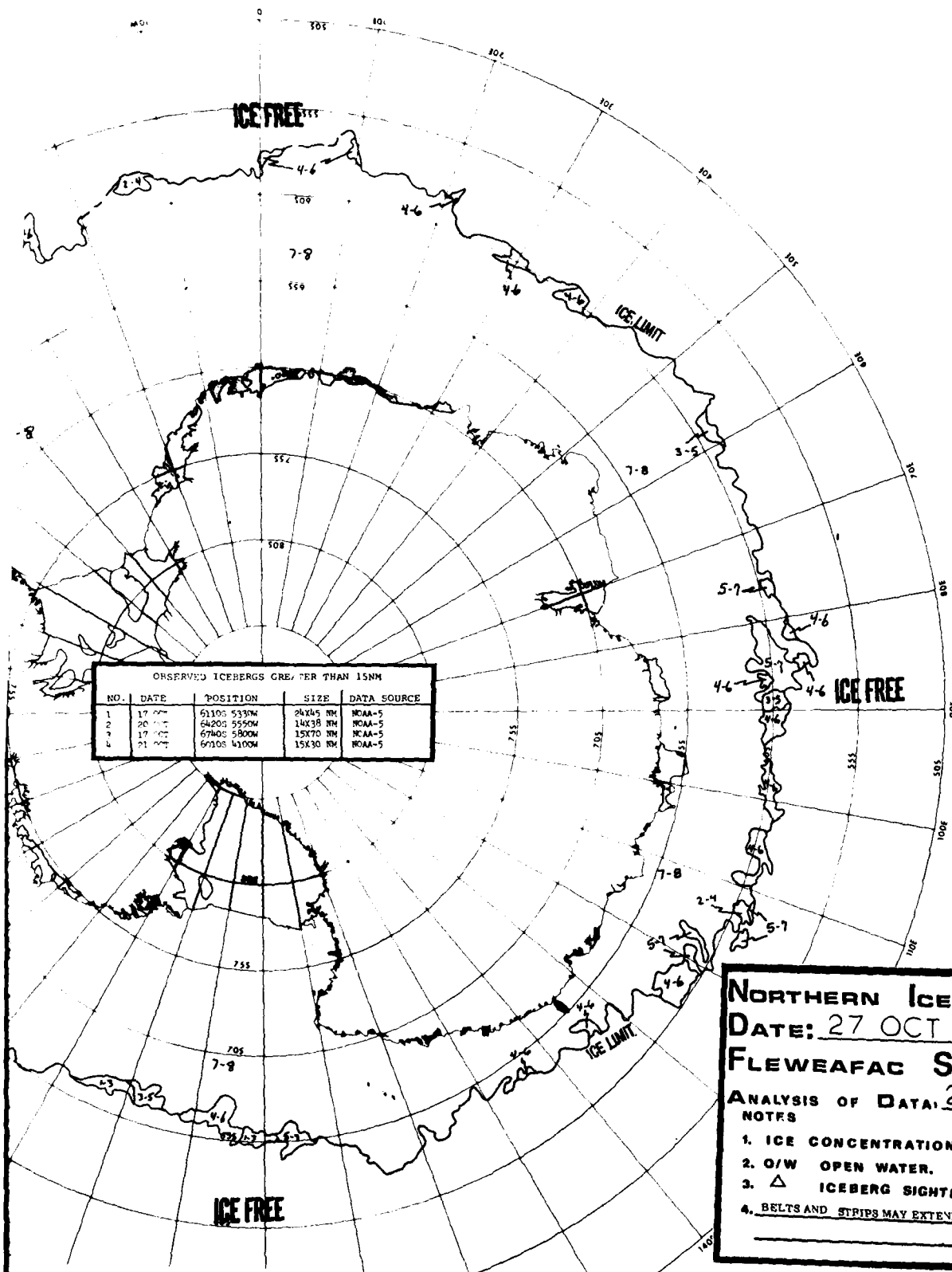
1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3. Δ ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 10-60 NM FROM EDGE.

2

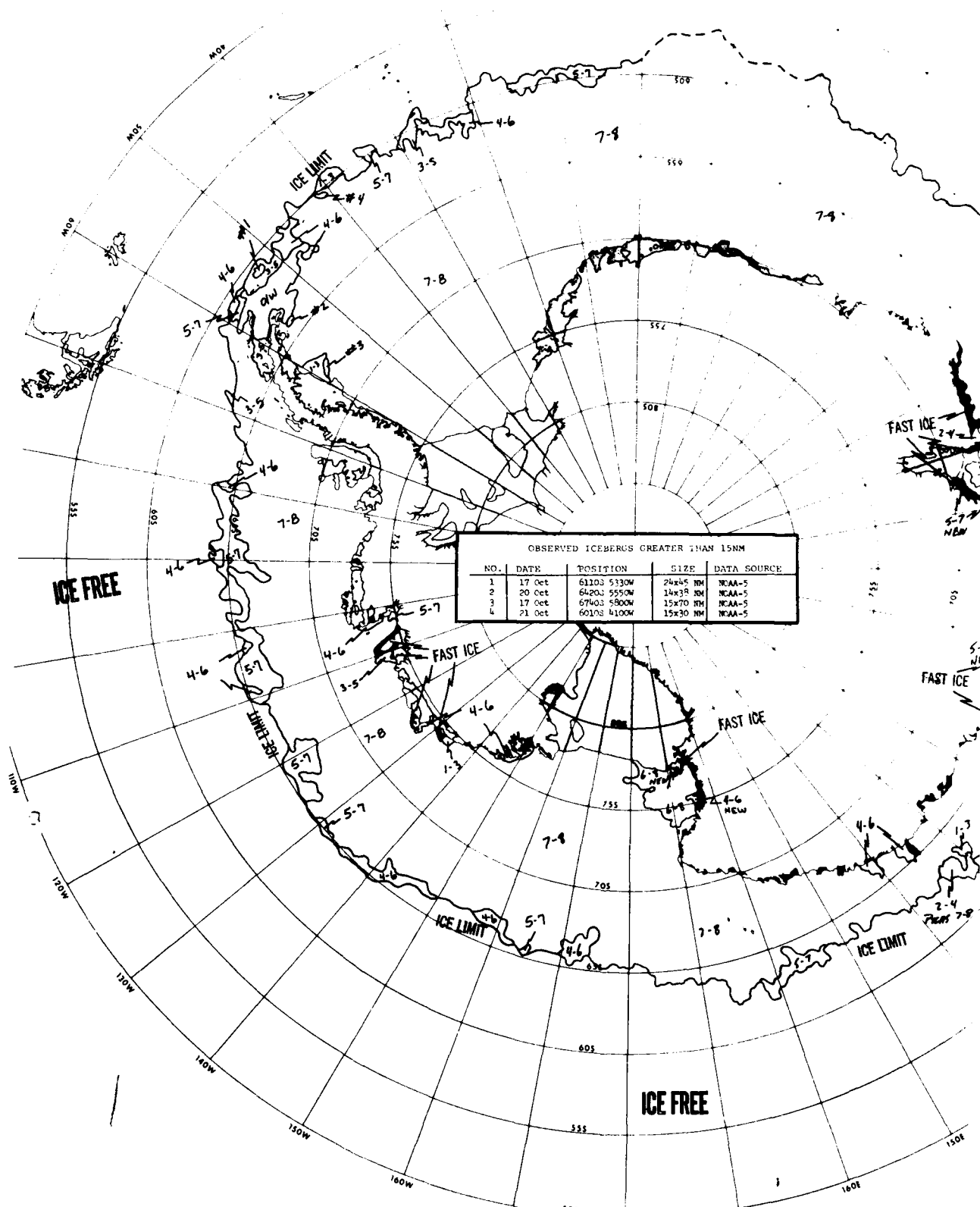


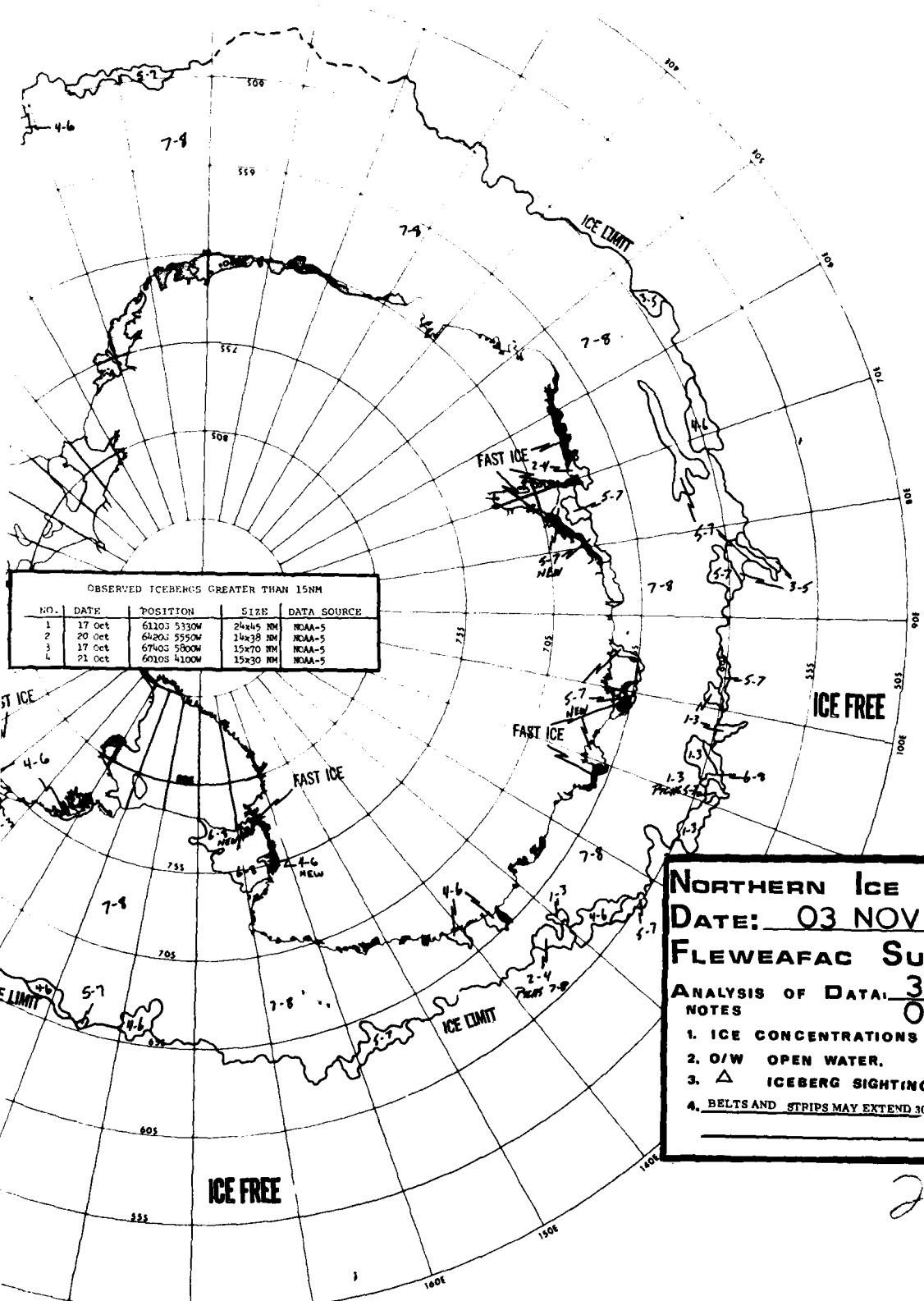






**NORTHERN Ice Limit**  
**DATE: 27 OCT 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 24-27 OCT**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-50 NM FROM EDGE.





OBSERVED ICEBERGS GREATER THAN 15NM

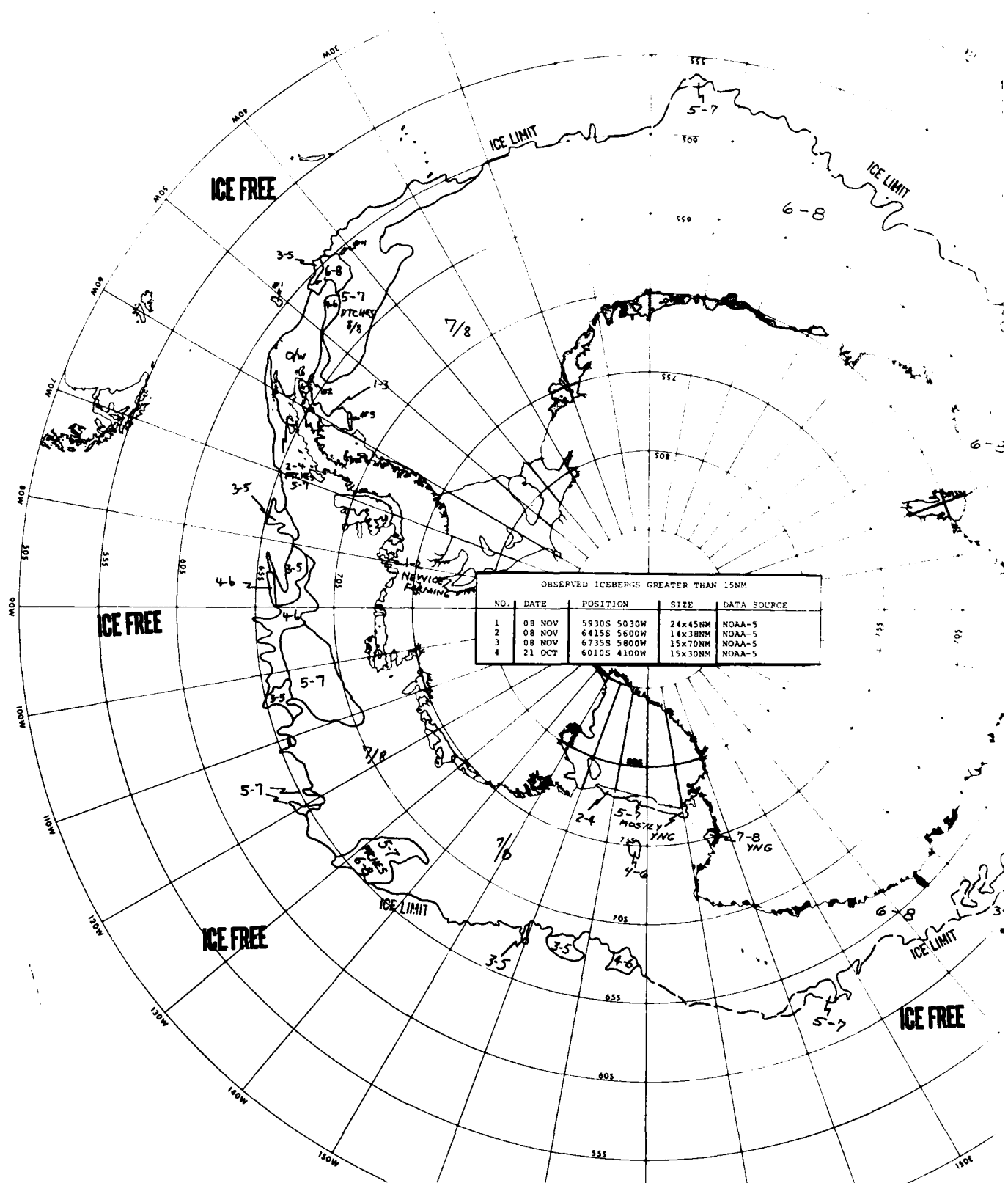
NO.	DATE	POSITION	SIZE	DATA SOURCE
1	17 Oct	6120S 5330W	24x45 NM	NOAA-5
2	20 Oct	6420S 5550W	14x38 NM	NOAA-5
3	17 Oct	6740S 5800W	15x70 NM	NOAA-5
4	21 Oct	6010S 4100W	15x30 NM	NOAA-5

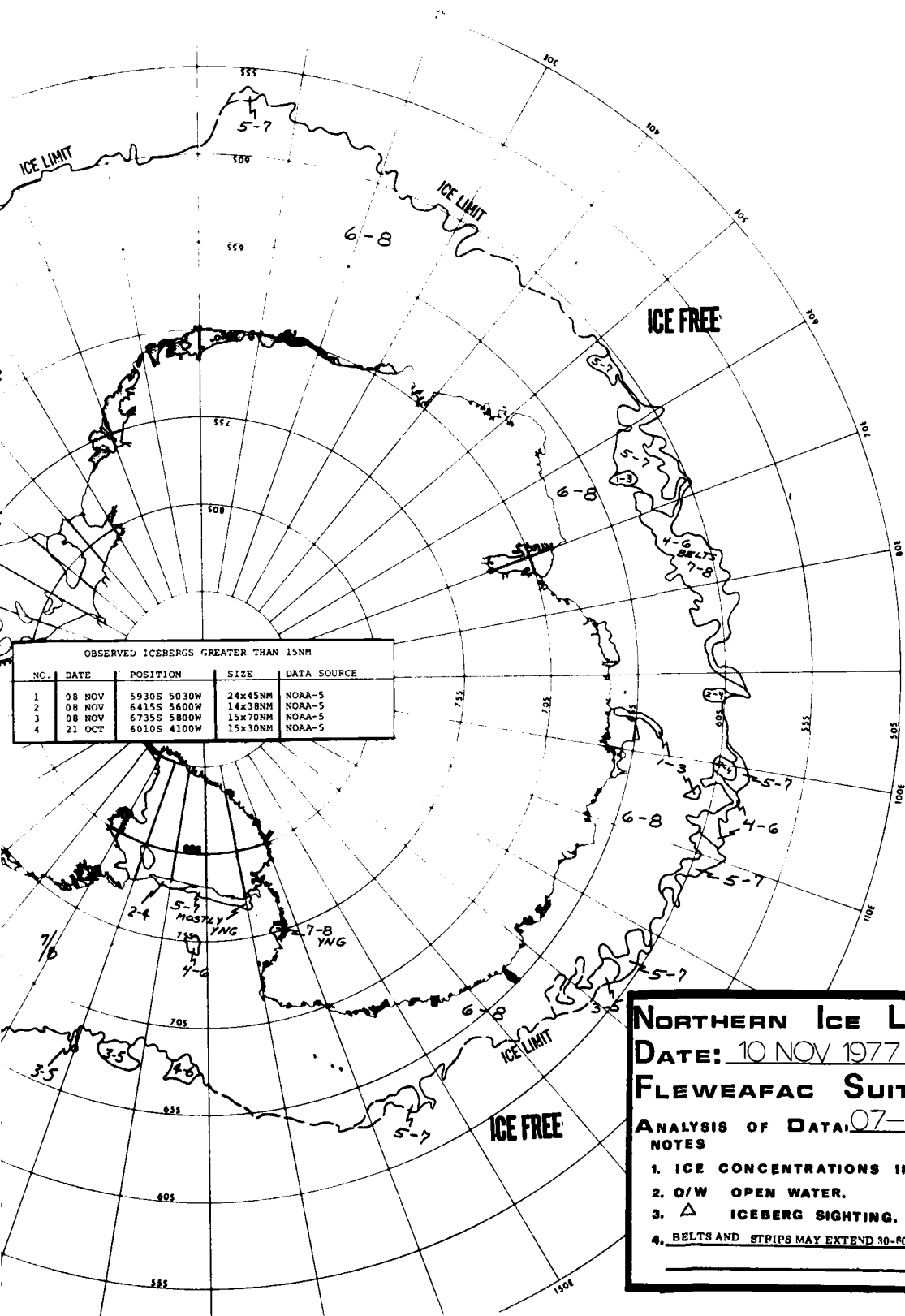
**NORTHERN ICE LIMIT**  
**DATE: 03 NOV 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 31 OCT-03 NOV**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2

2



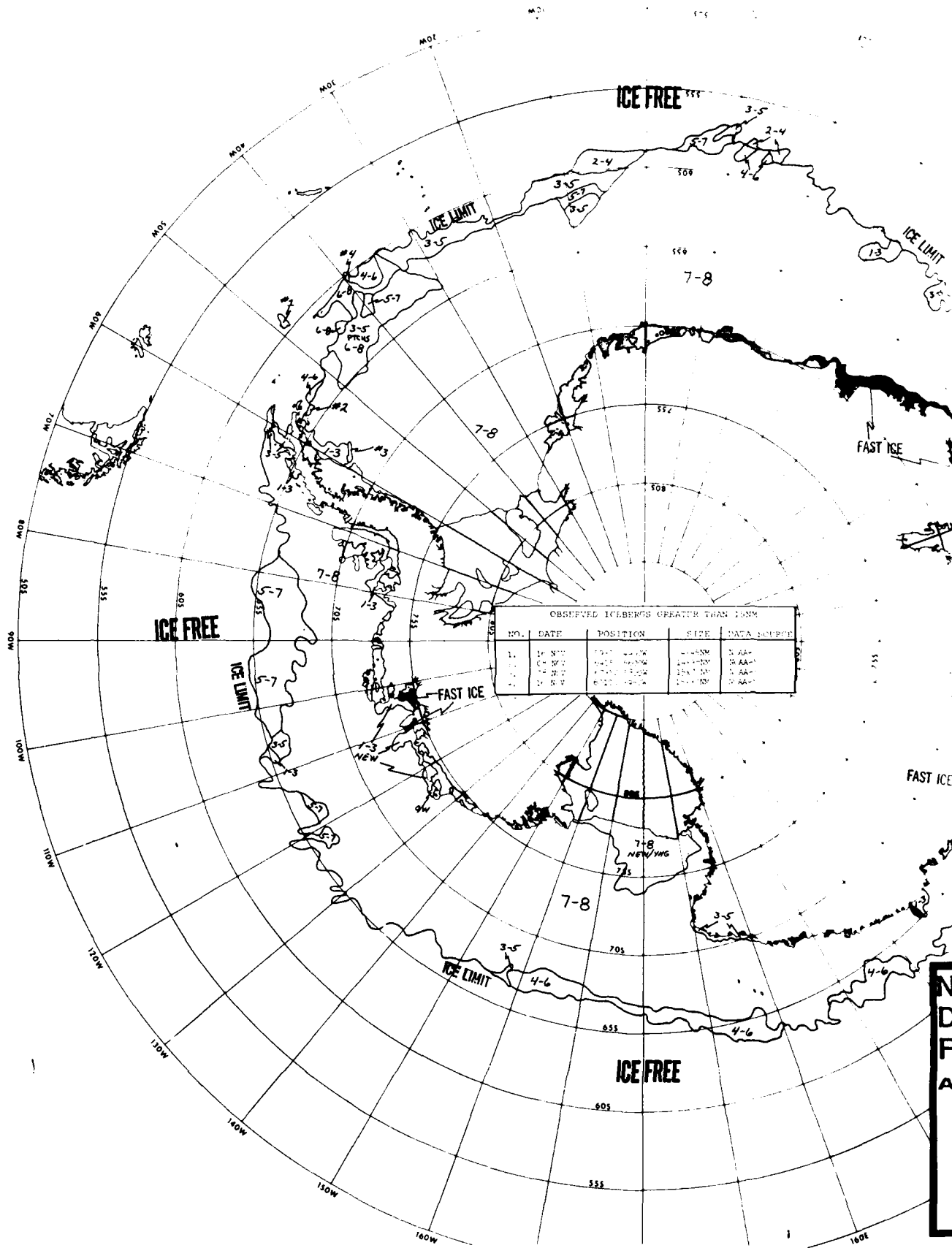




**NORTHERN Ice Limit**  
**DATE:** 10 NOV 1977  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA:** 07-10 NOV  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3. △ ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2

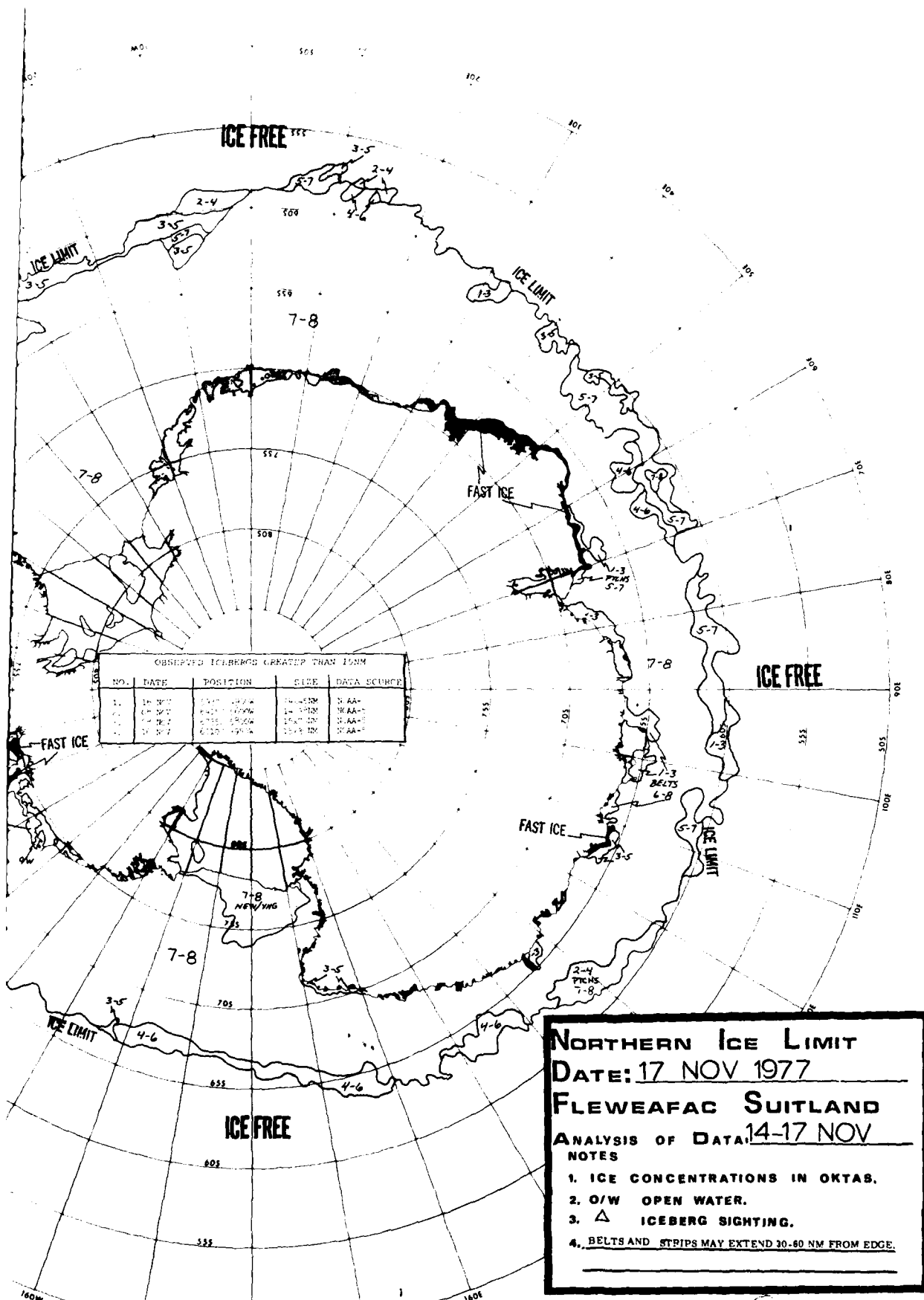
Q



OBSERVED ICEBERGS GREATER THAN 100M

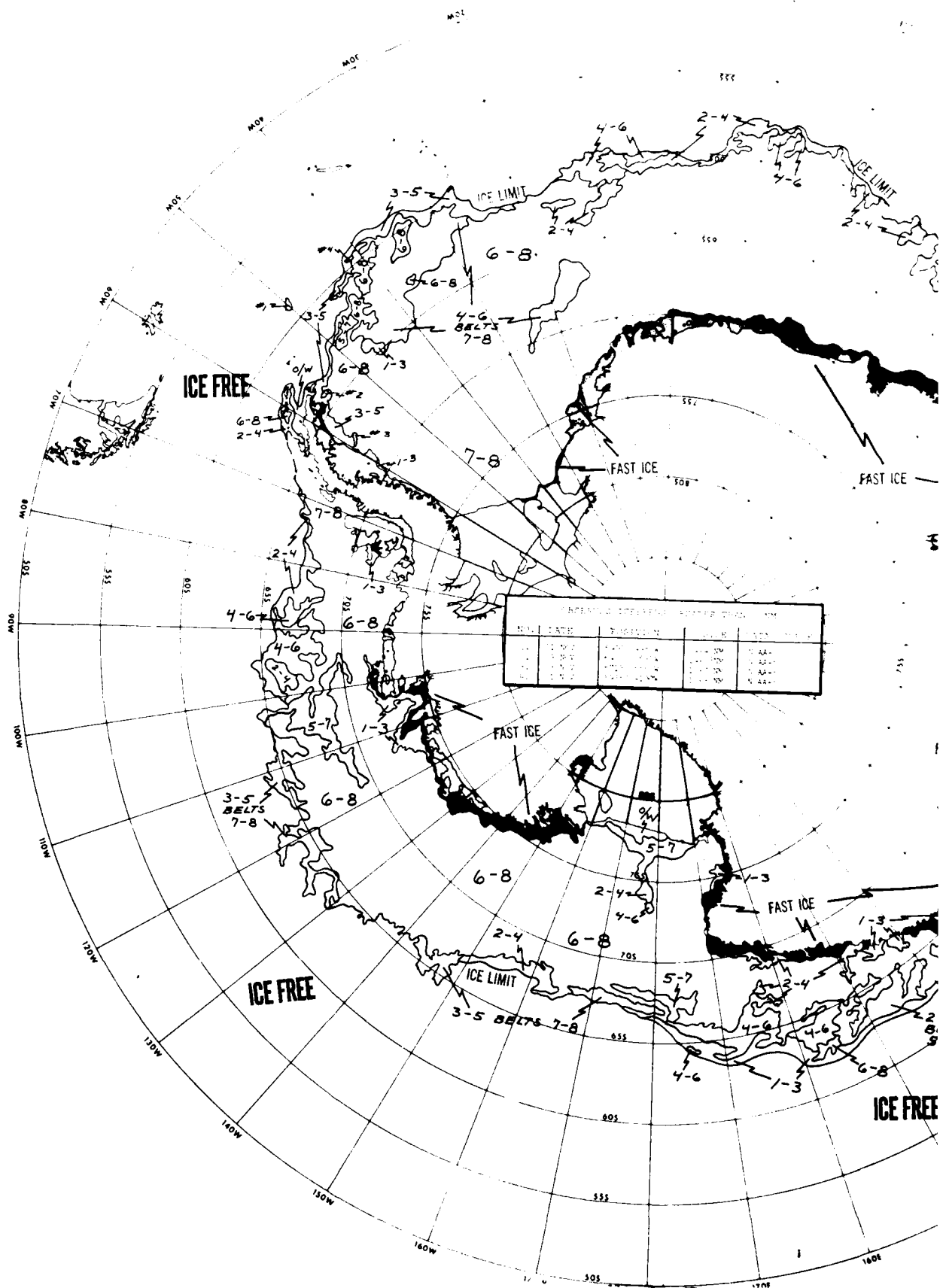
NO.	DATE	POSITION	SIZE	DATA SOURCE
1.	11 SEP	70°N 150°W	100x50	W. AA-
2.	11 SEP	70°N 150°W	100x50	W. AA-
3.	11 SEP	70°N 150°W	100x50	W. AA-
4.	11 SEP	70°N 150°W	100x50	W. AA-

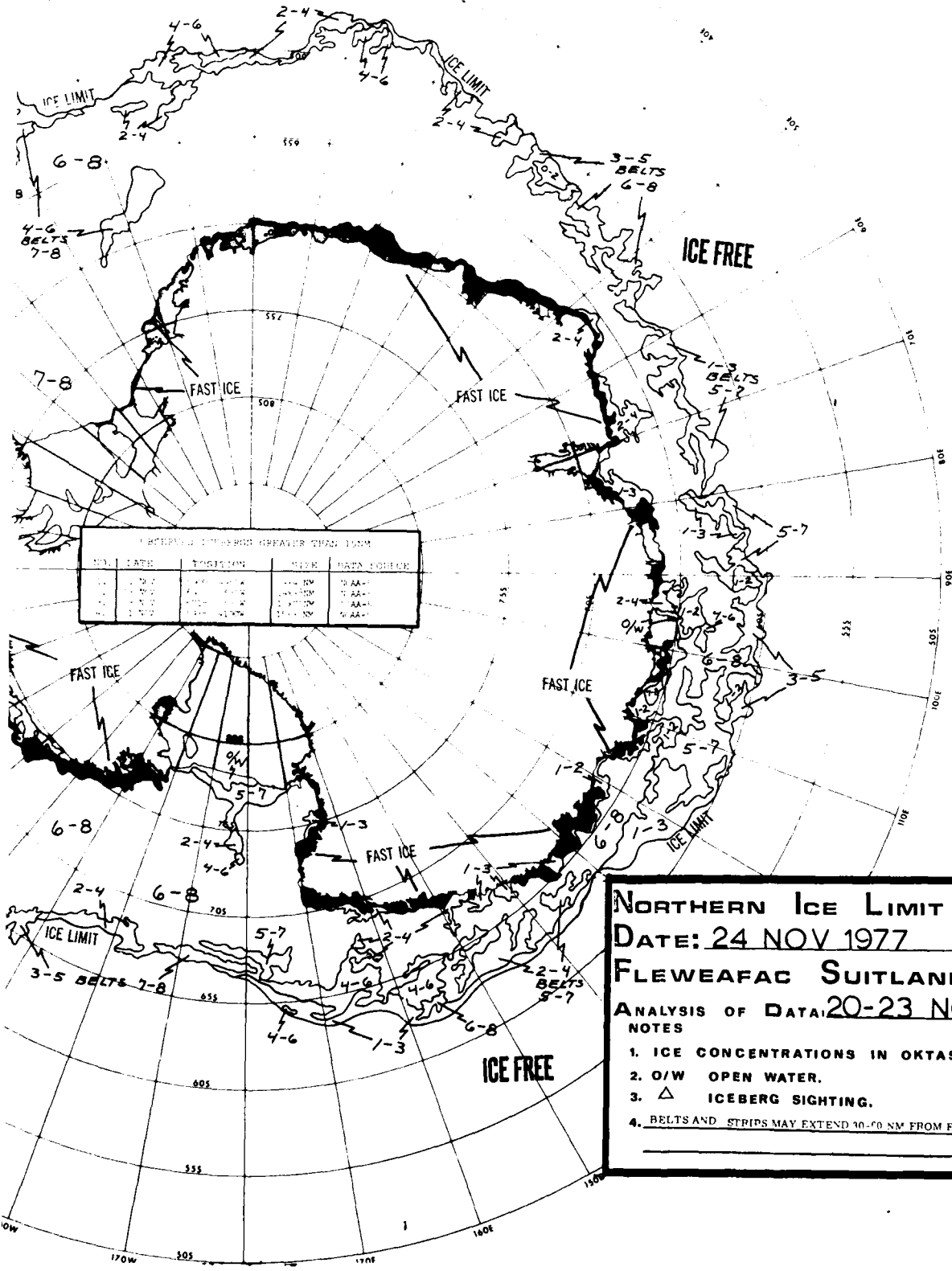
NO. 1



**NORTHERN ICE LIMIT**  
**DATE: 17 NOV 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 14-17 NOV**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3.  $\Delta$  ICEBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2





**NORTHERN Ice LIMIT**  
**DATE: 24 NOV 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 20-23 NOV**  
**NOTES**

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3. △ ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-50 NM FROM EDGE.

2

AO-A086 299

FLEET WEATHER FACILITY SUITLAND MD  
ANTARCTIC ICE CHARTS, 1977-1978. (U)  
1978

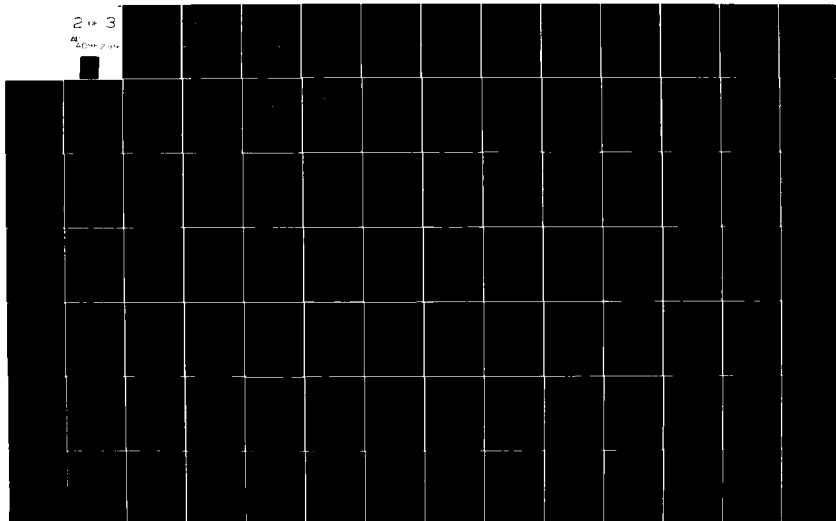
F/O 8/12

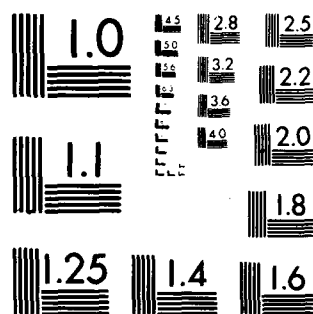
UNCLASSIFIED

NL

2 of 3

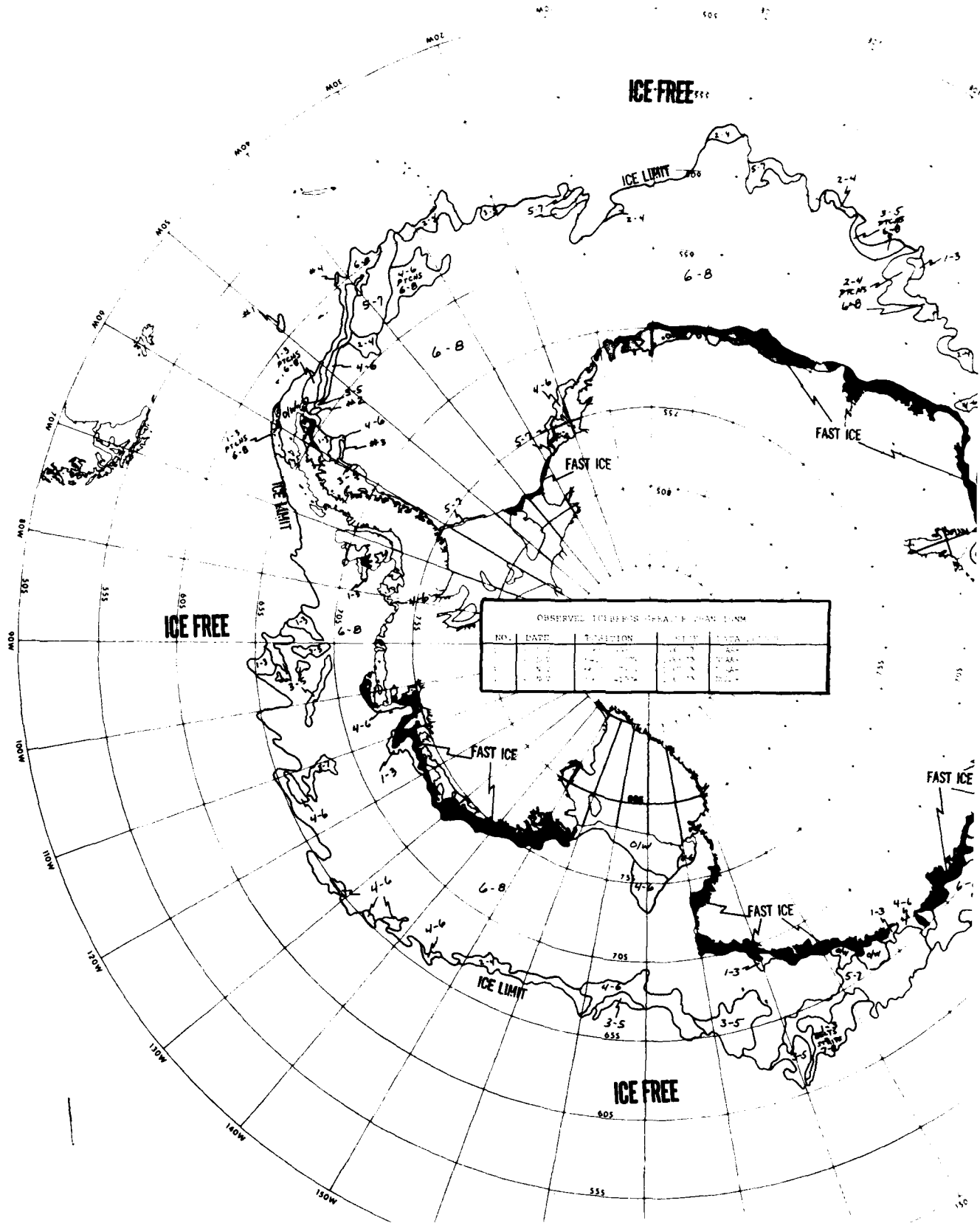
AL  
AD-77-2-1-1

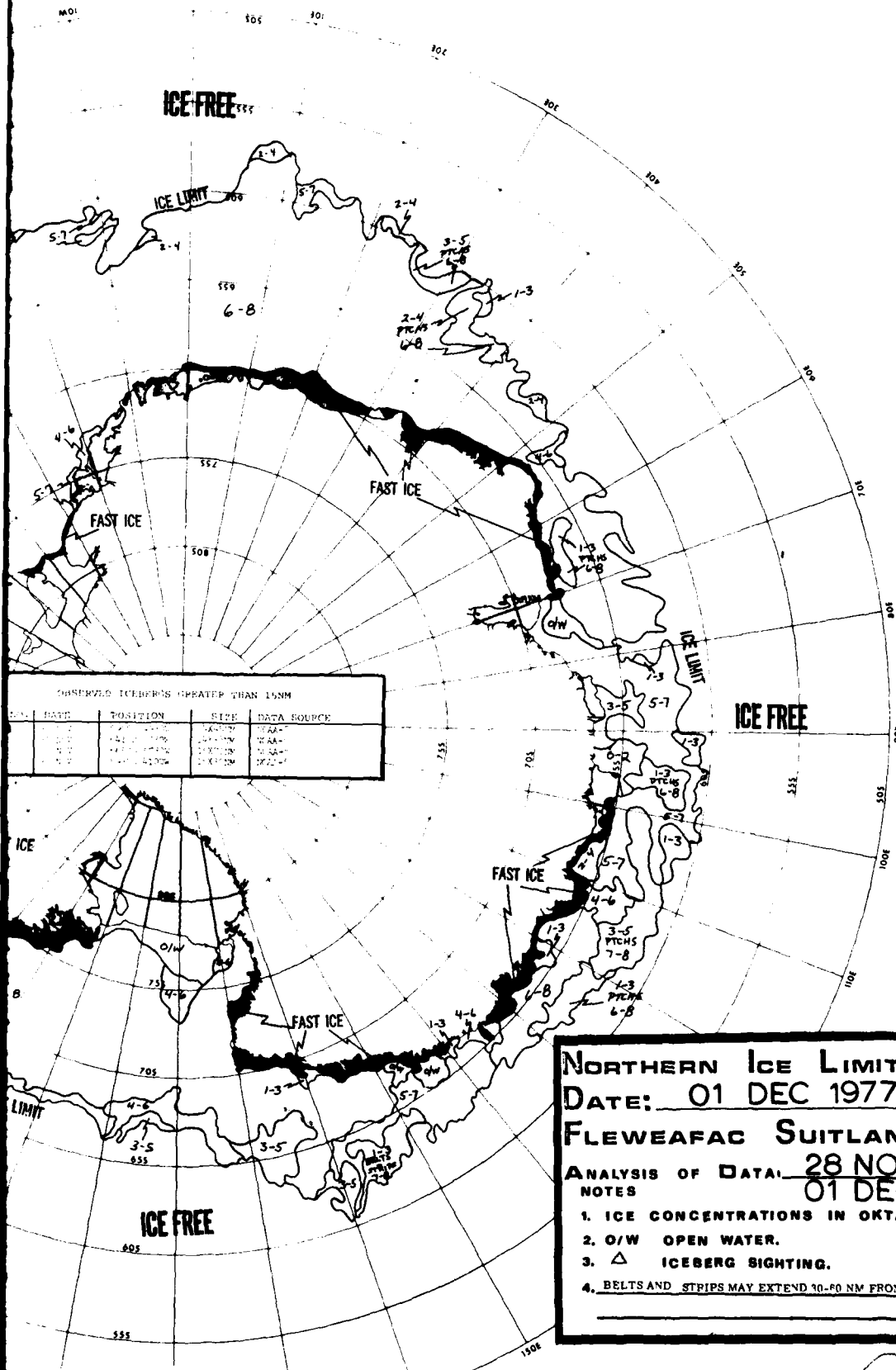




MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A



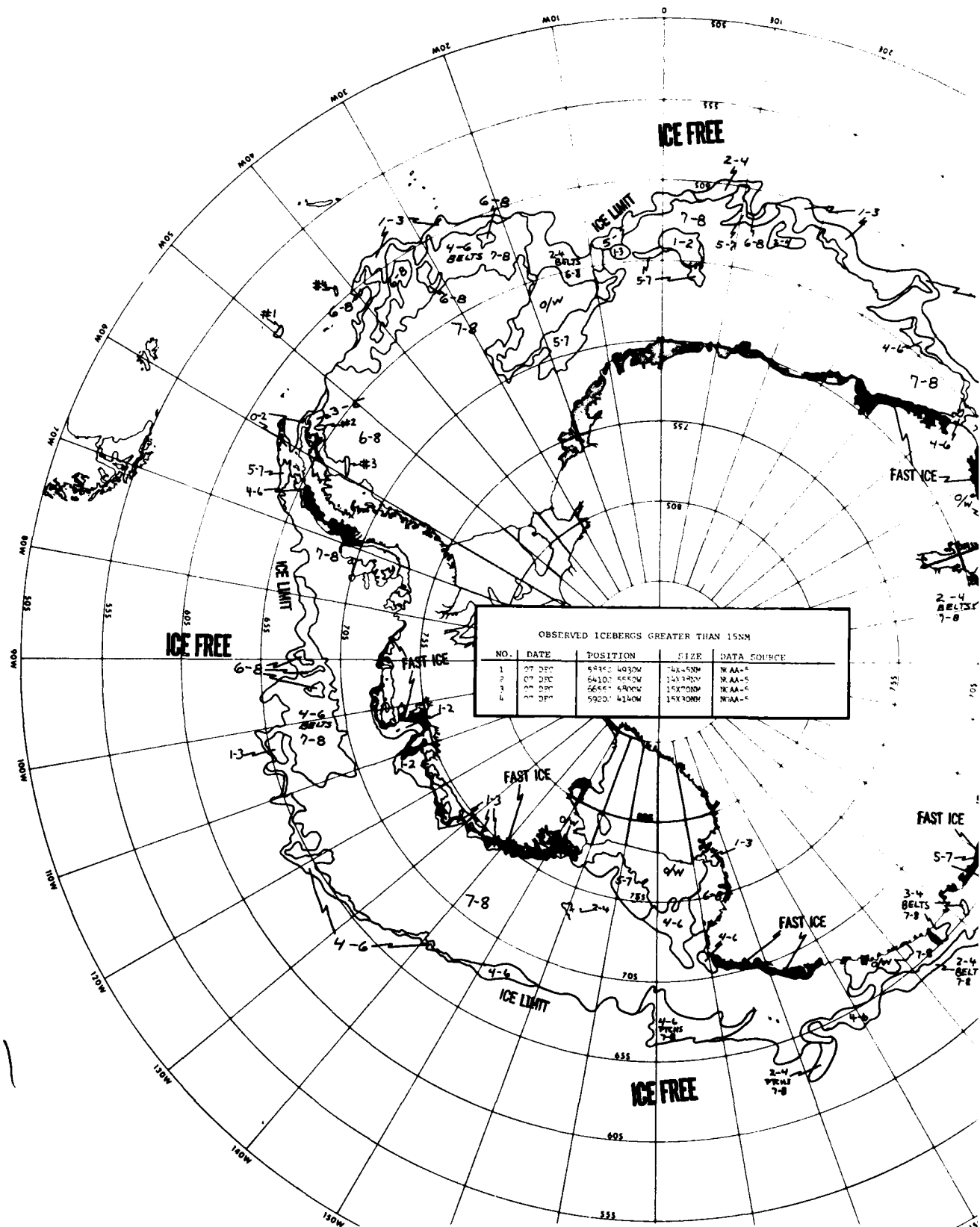


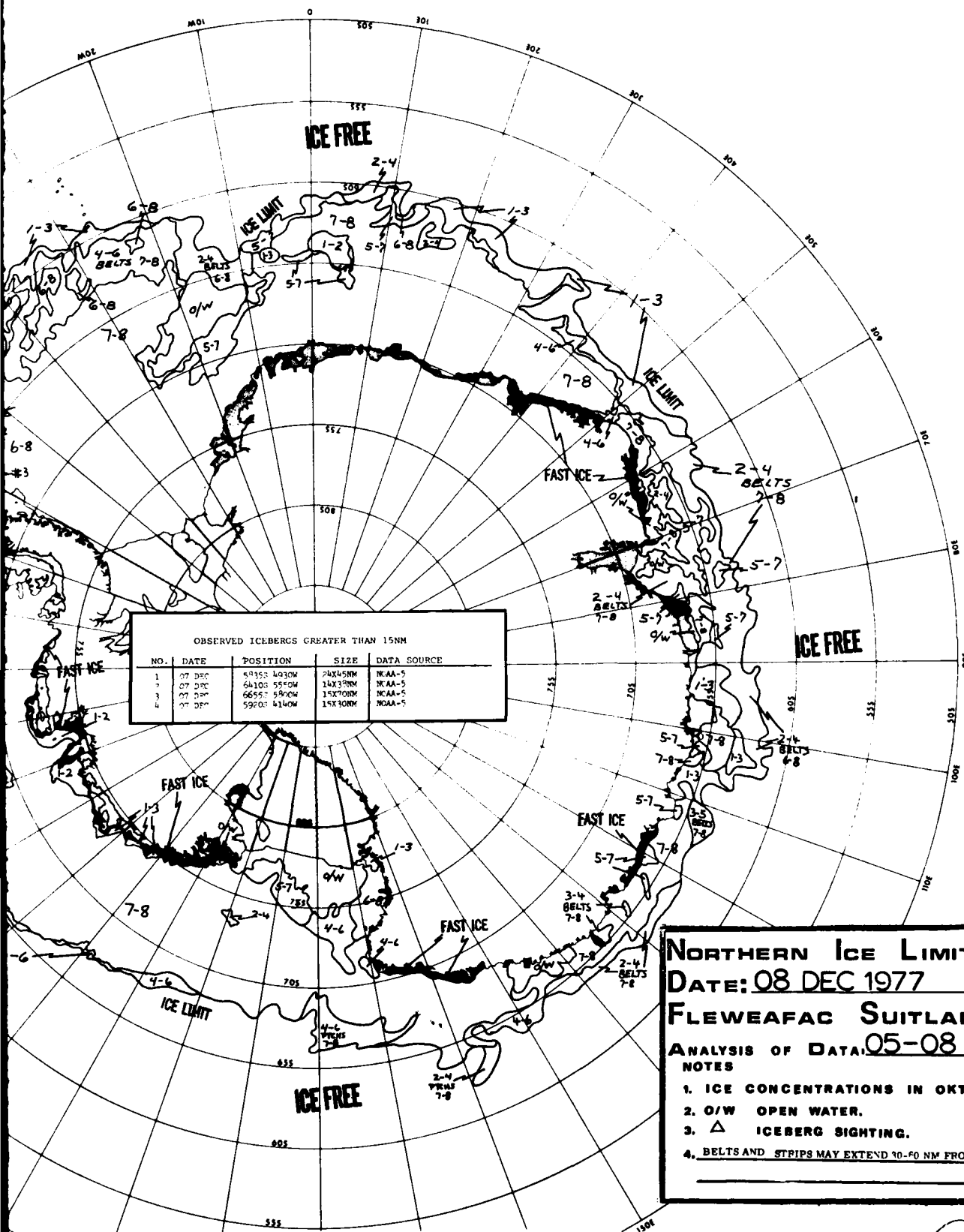


**NORTHERN Ice Limit**  
**DATE: 01 DEC 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 28 NOV - 01 DEC**  
**NOTES**  
 1. ICE CONCENTRATIONS IN OKTAS.  
 2. O/W OPEN WATER.  
 3. Δ ICESBERG SIGHTING.  
 4. BELTS AND STRIPS MAY EXTEND 10-40 NM FROM EDGE.

2

2





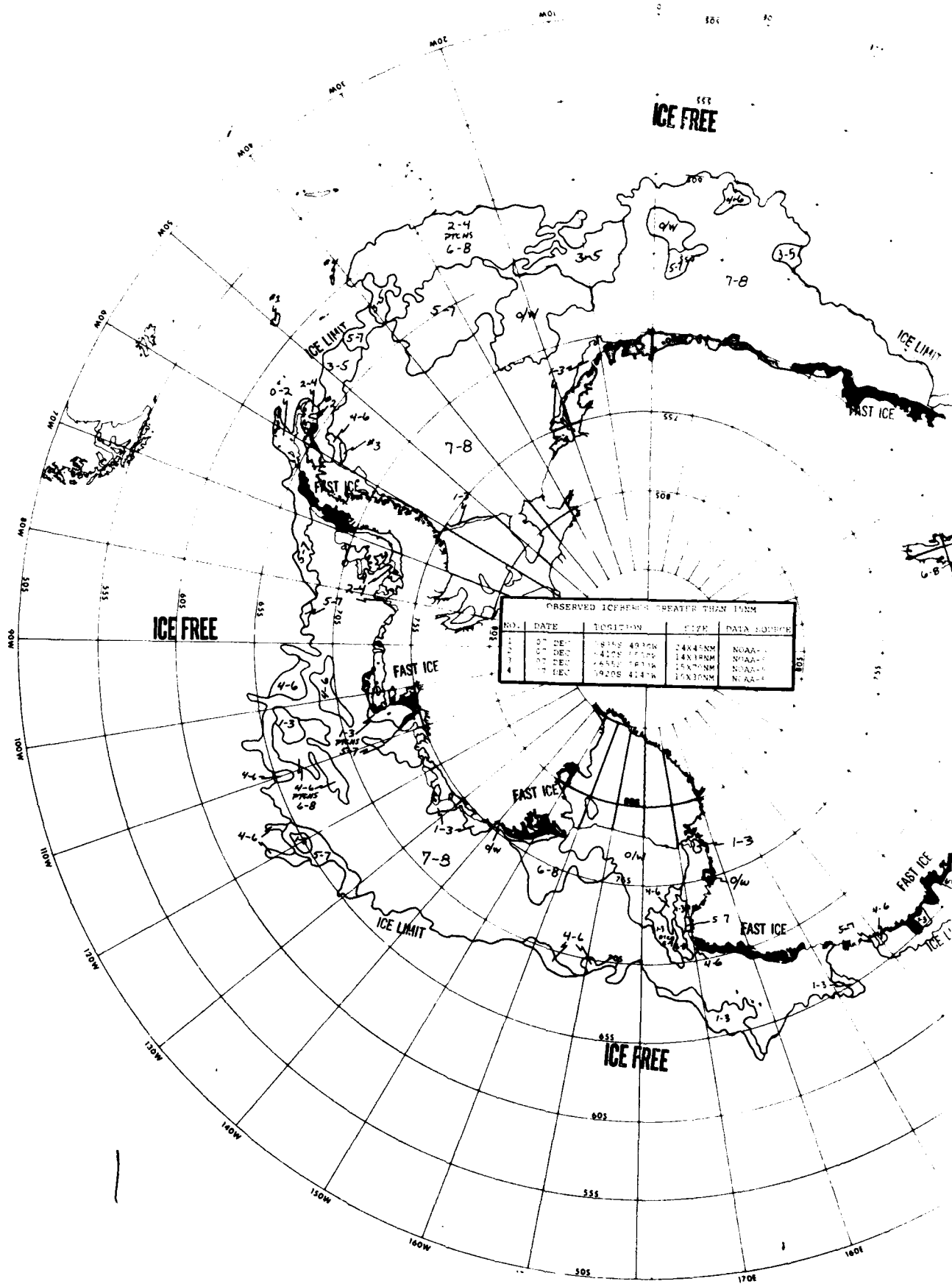
**NORTHERN ICE LIMIT**  
**DATE: 08 DEC 1977**  
**FLEWEAFAC SUITLAND**  
**ANALYSIS OF DATA: 05-08 DEC**

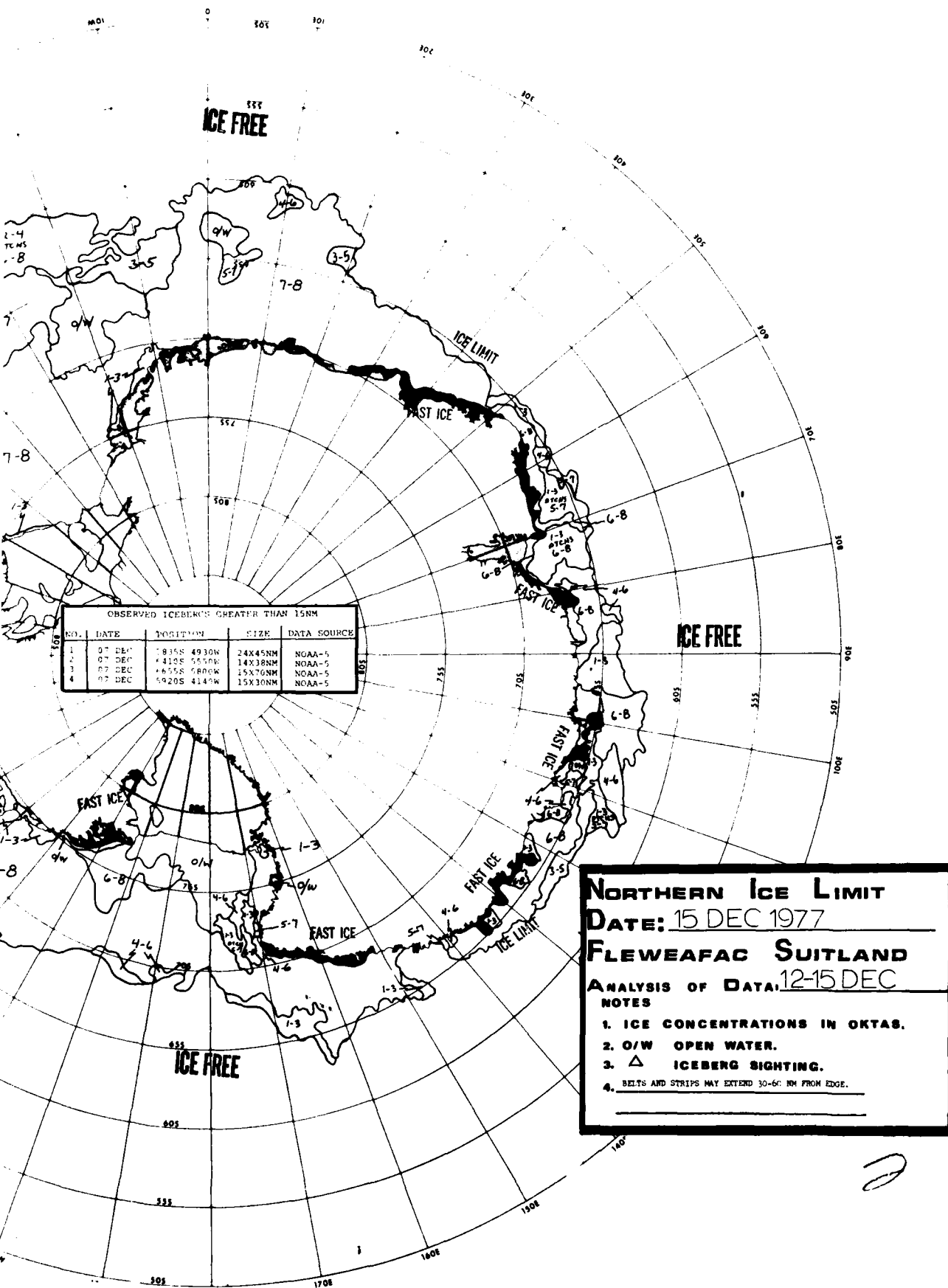
**NOTES**

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 10-60 NM FROM EDGE.

2

2



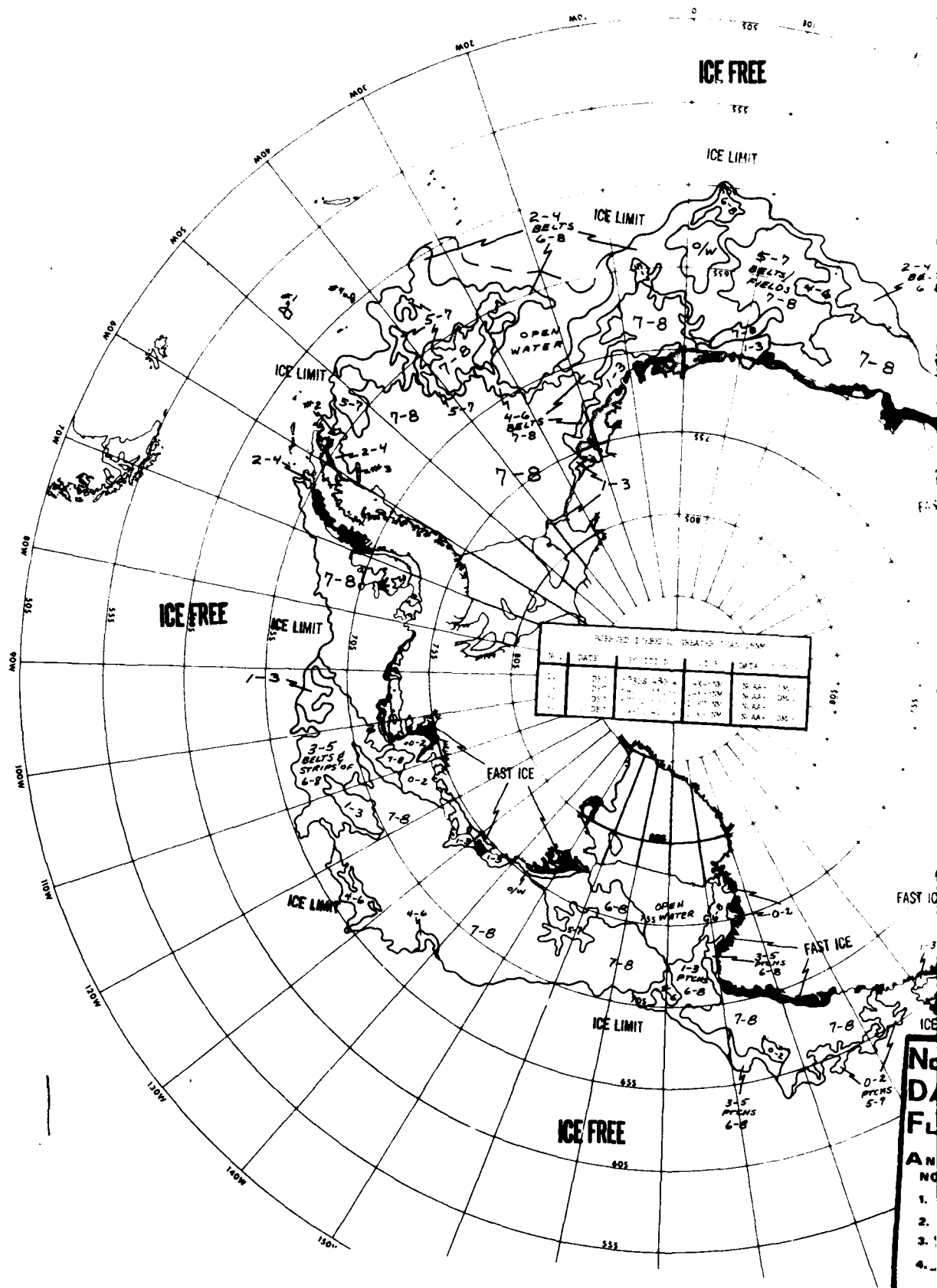


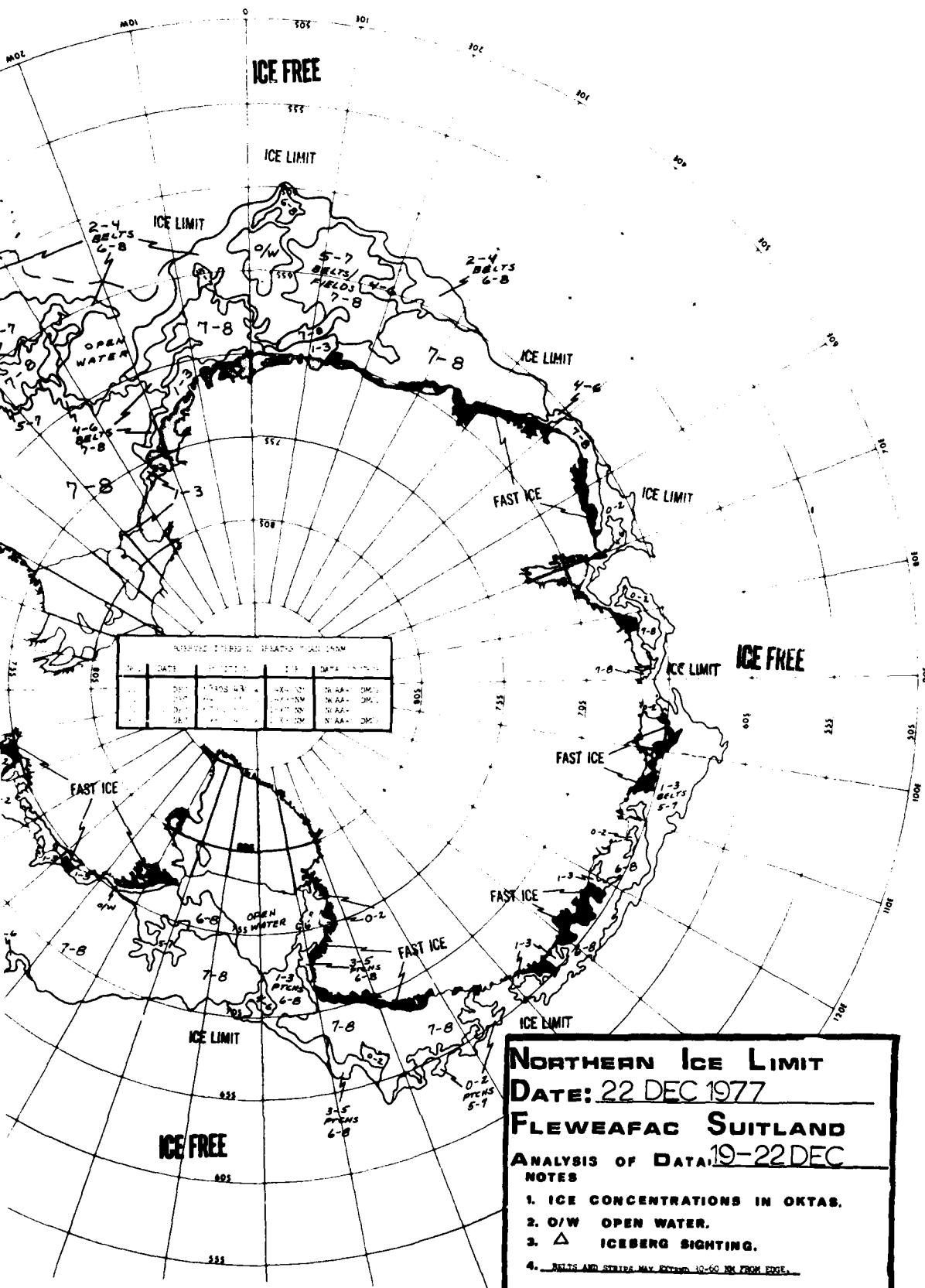
**NORTHERN ICE LIMIT**  
**DATE: 15 DEC 1977**  
**FLEWEAFAC SUTLAND**  
**ANALYSIS OF DATA: 12-15 DEC**

**NOTES**

1. ICE CONCENTRATIONS IN OKTAS.
2. O/W OPEN WATER.
3.  $\Delta$  ICEBERG SIGHTING.
4. BELTS AND STRIPS MAY EXTEND 30-60 NM FROM EDGE.

2

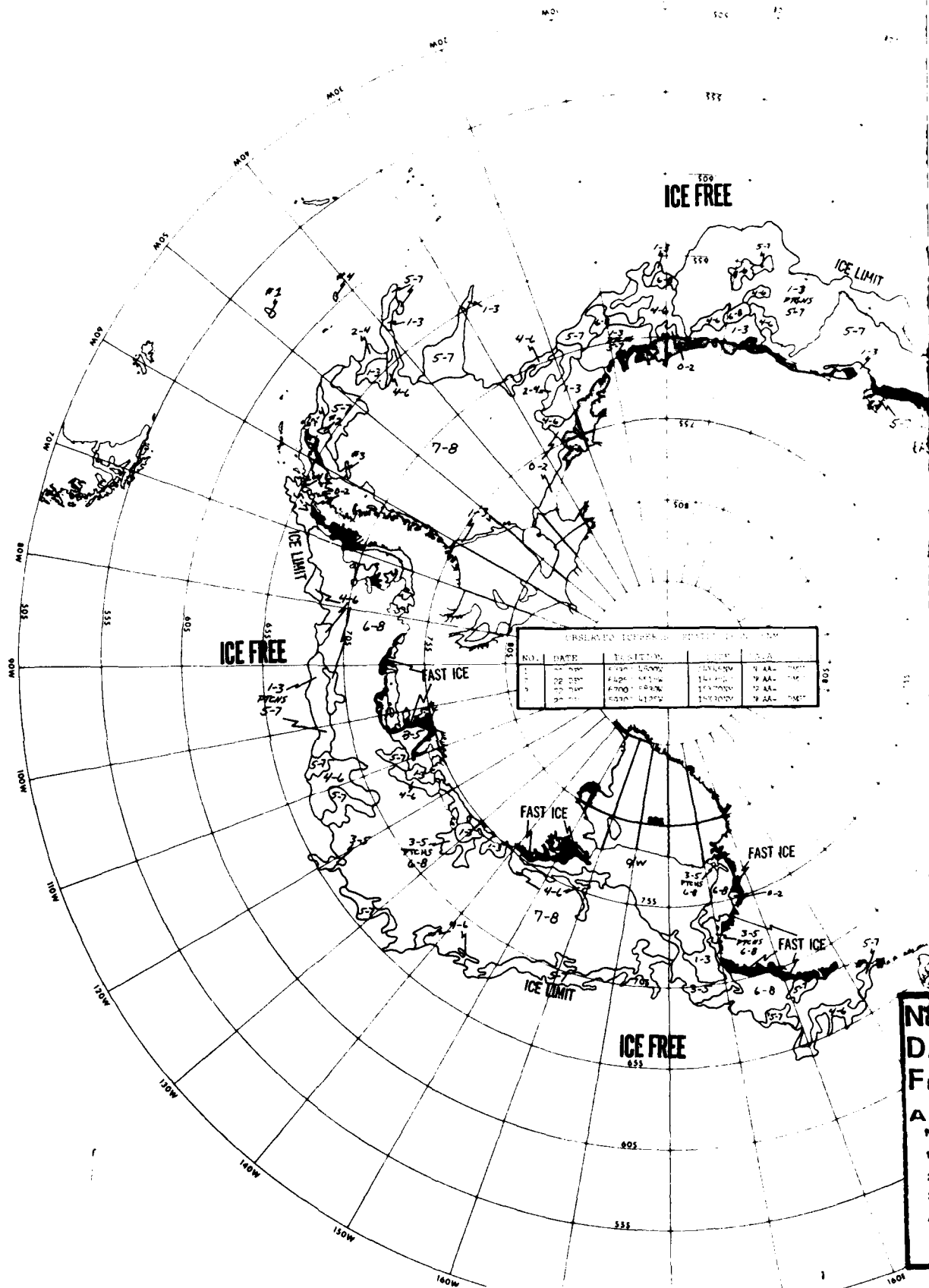




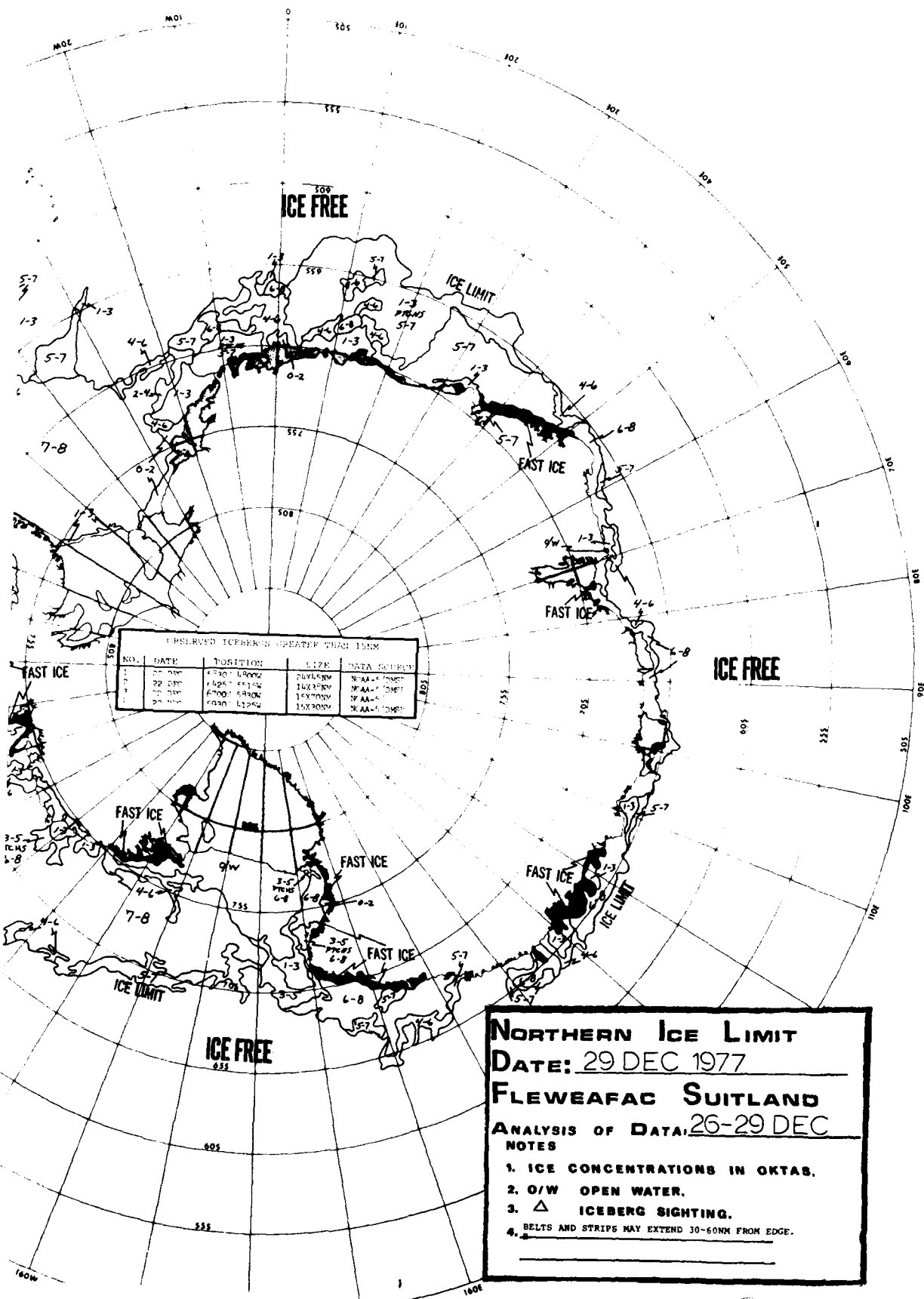
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2



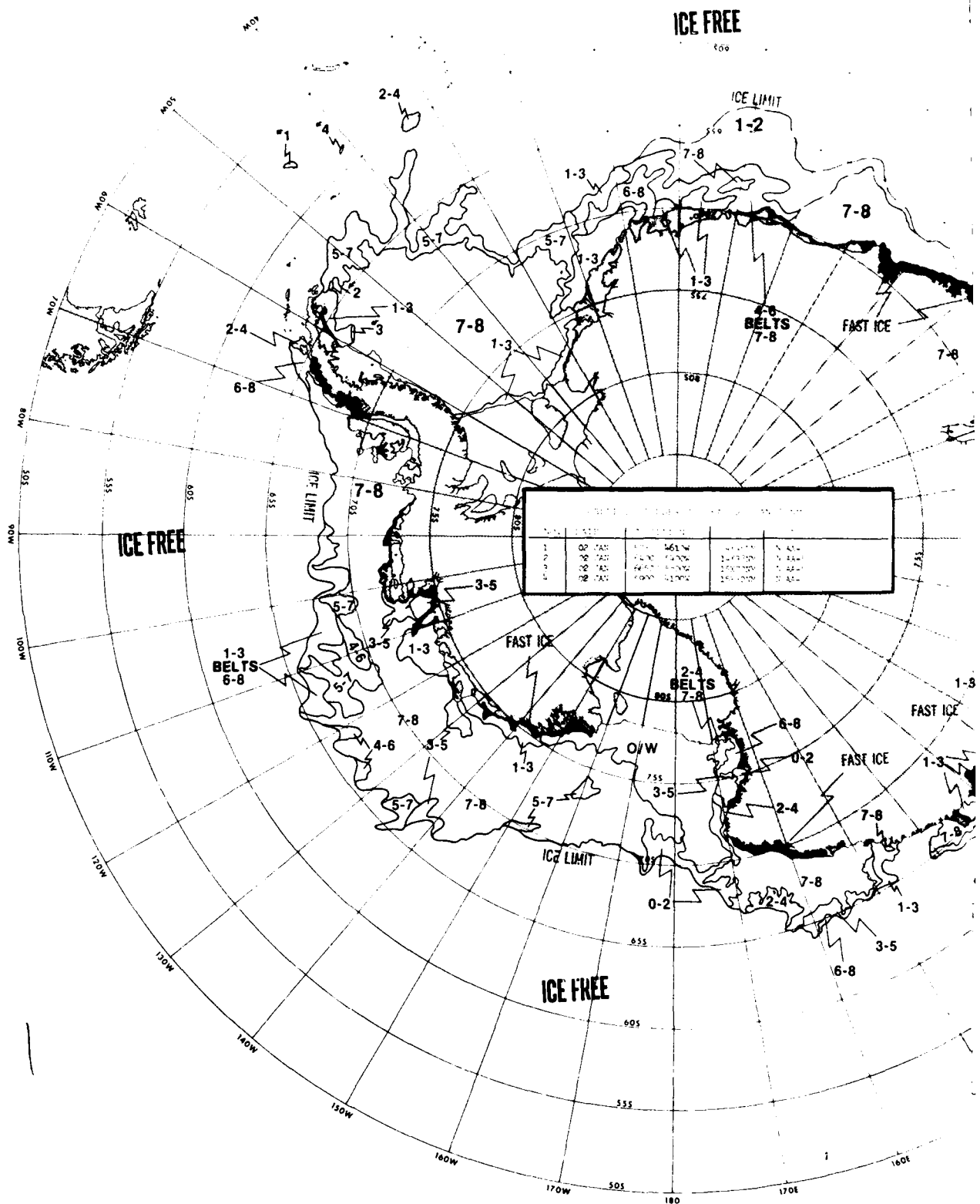


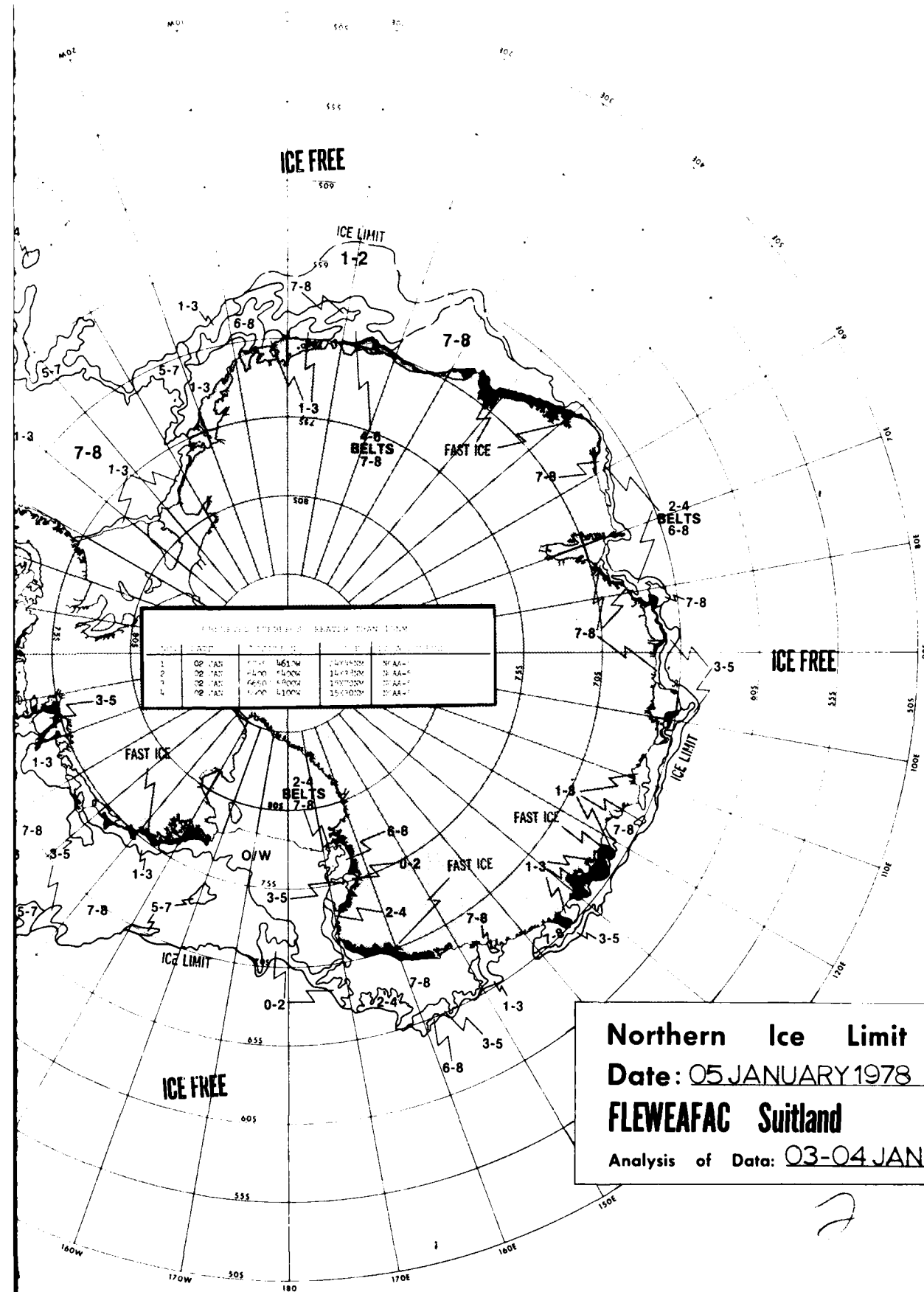
NO. 1



2

2

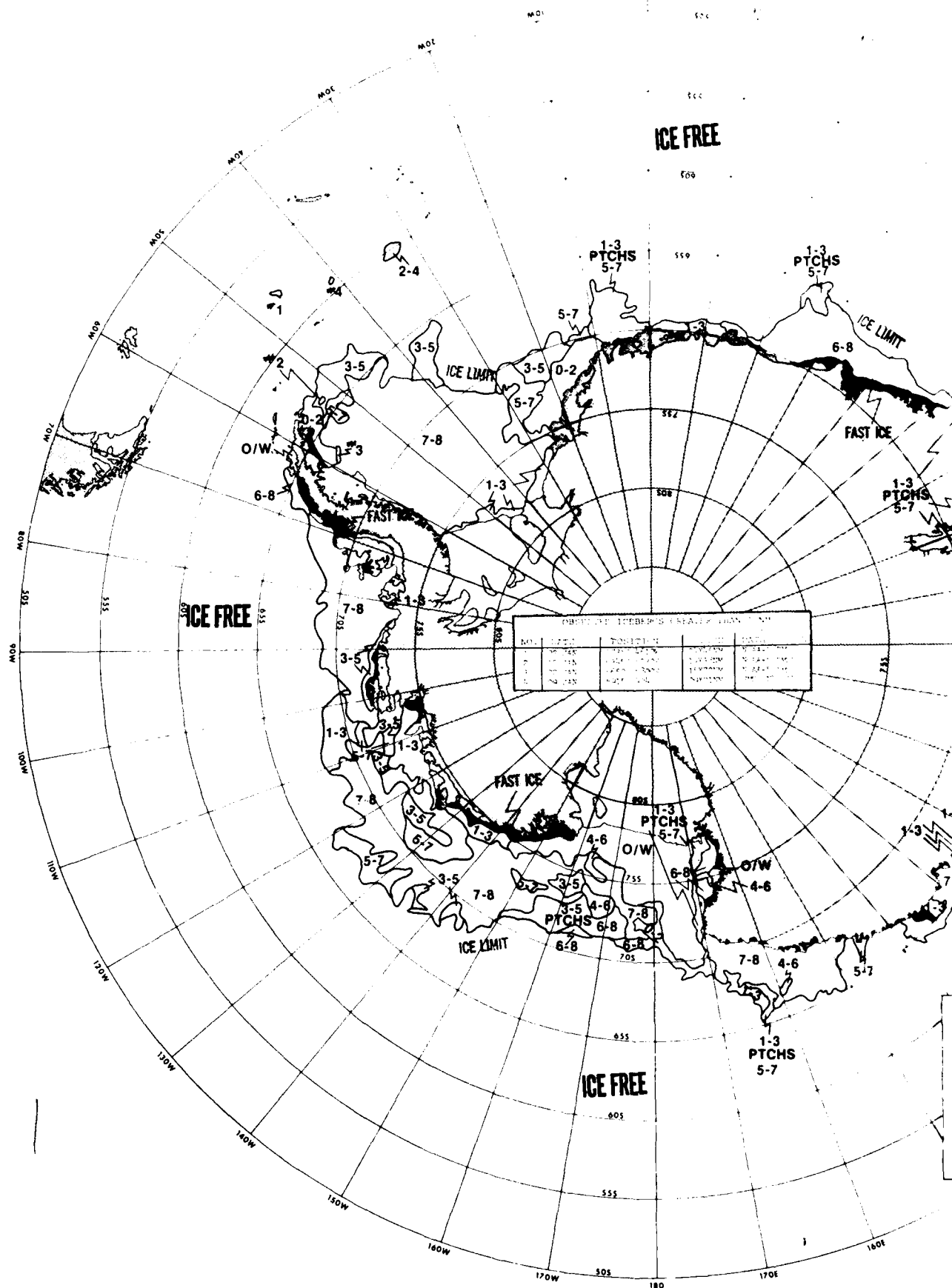


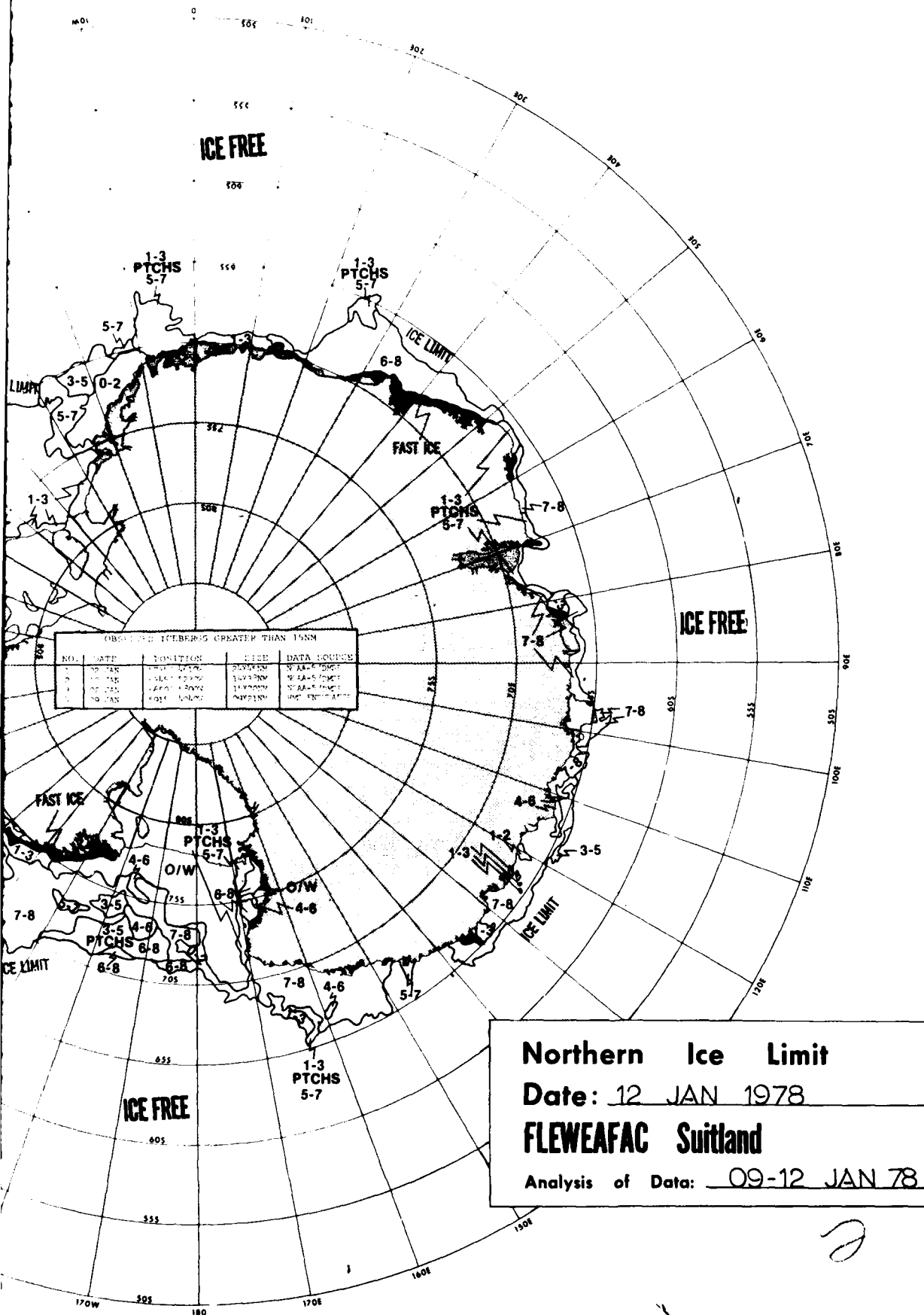


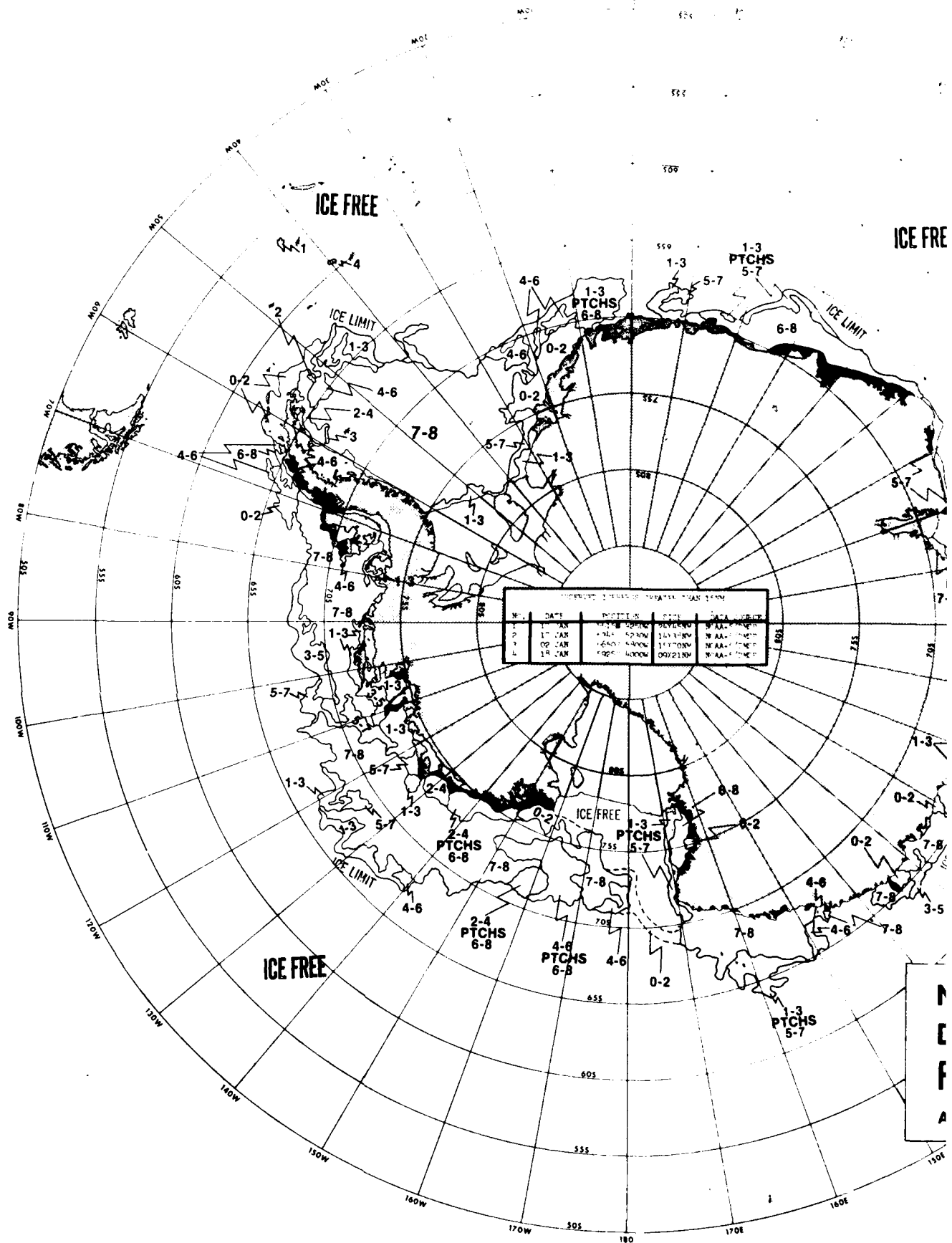
**Date:** 05 JANUARY 1978

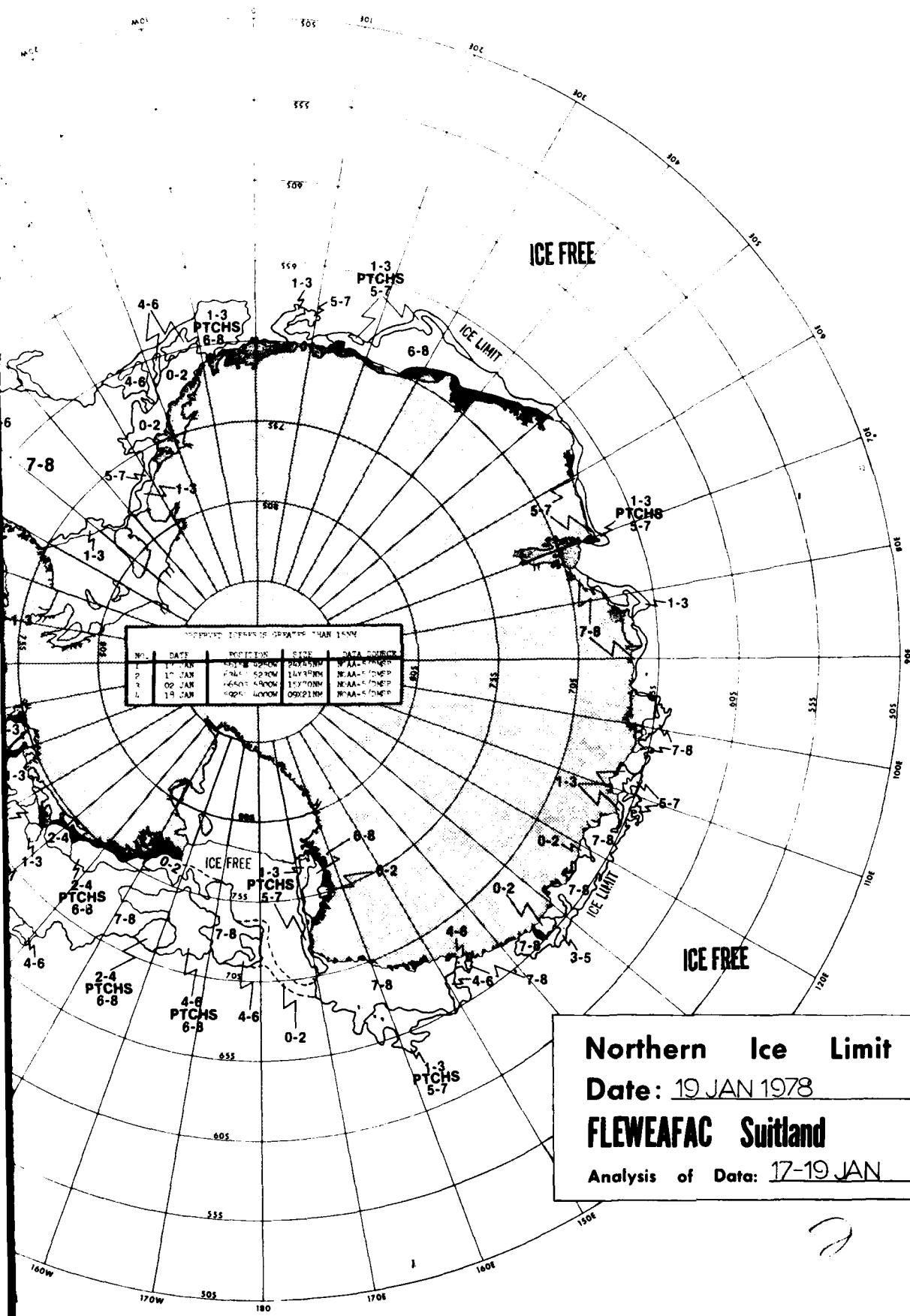
**FLEWEAFAC**   **Suitland**

Analysis of Data: 03-04 JAN 1978



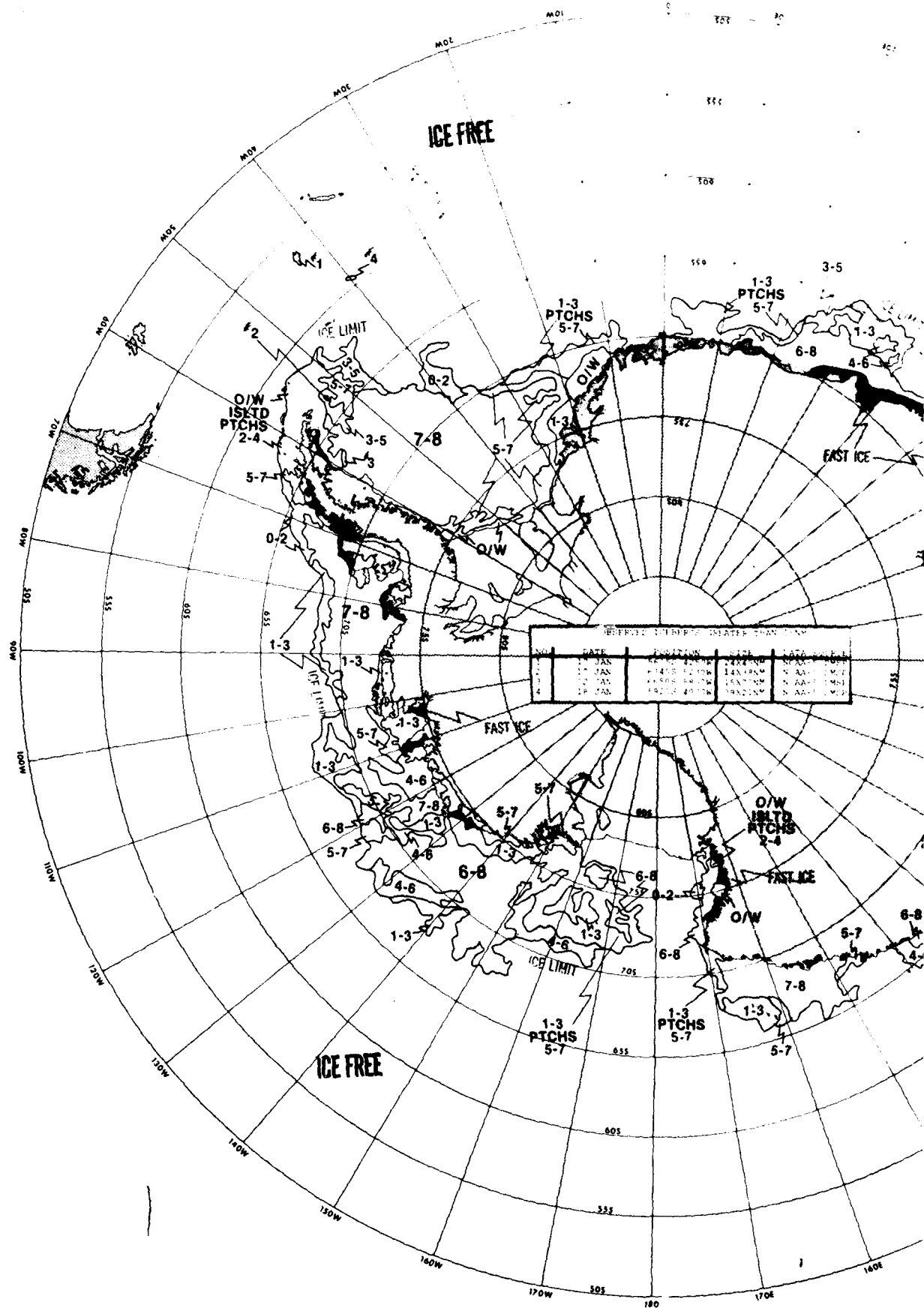




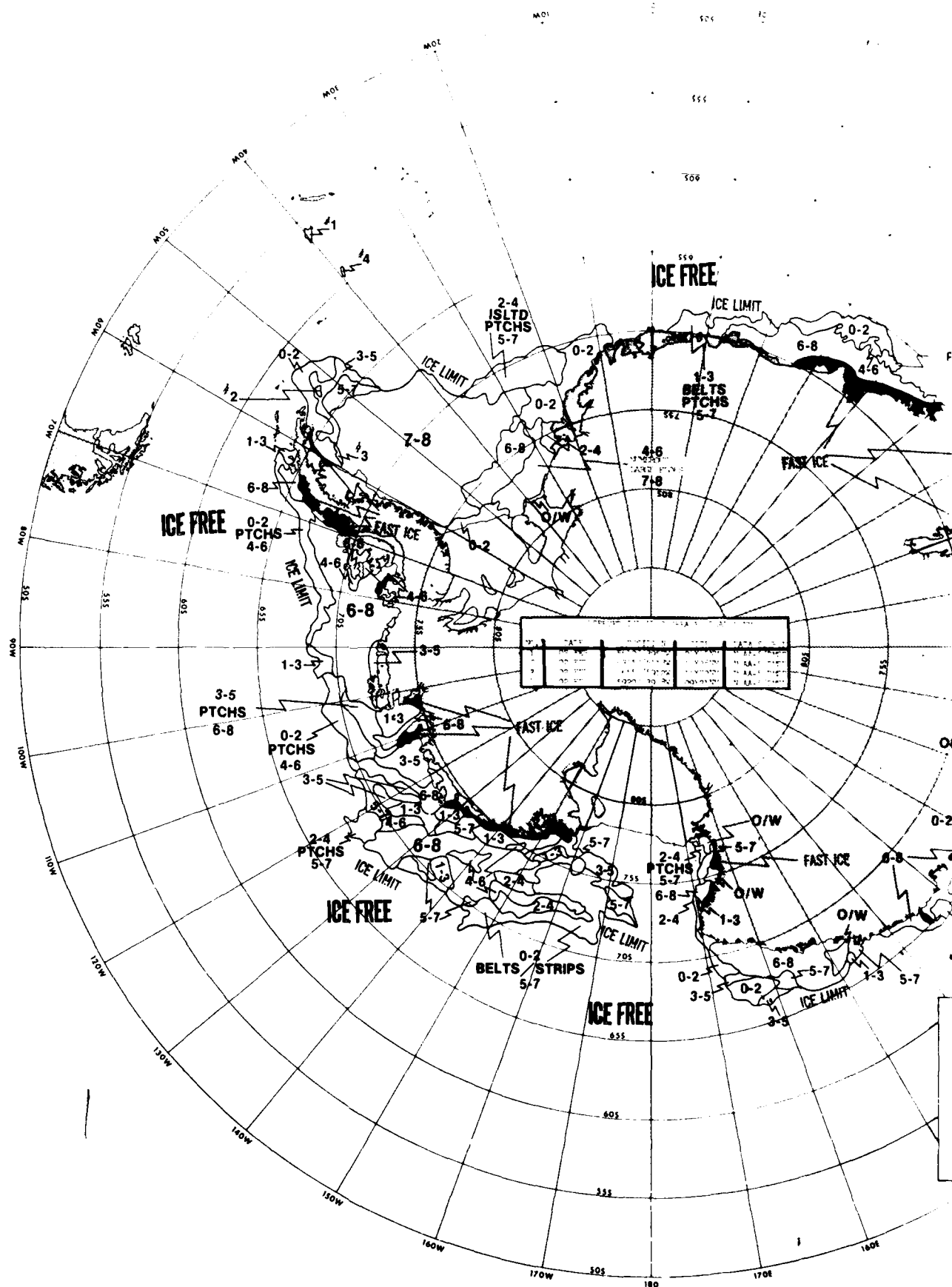


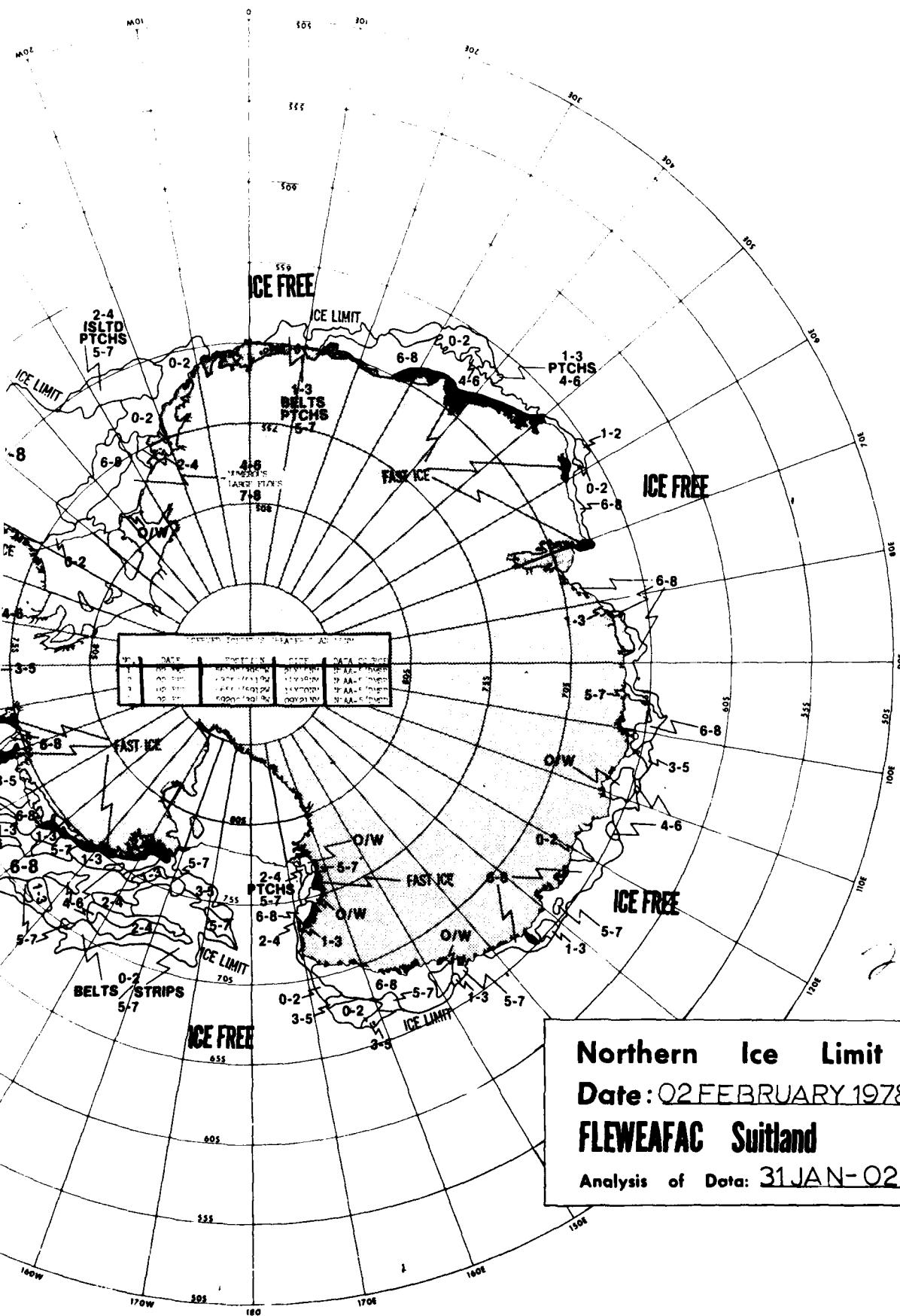
**Northern Ice Limit**  
**Date:** 19 JAN 1978  
**FLEWEAFAC Suitland**  
**Analysis of Data:** 17-19 JAN











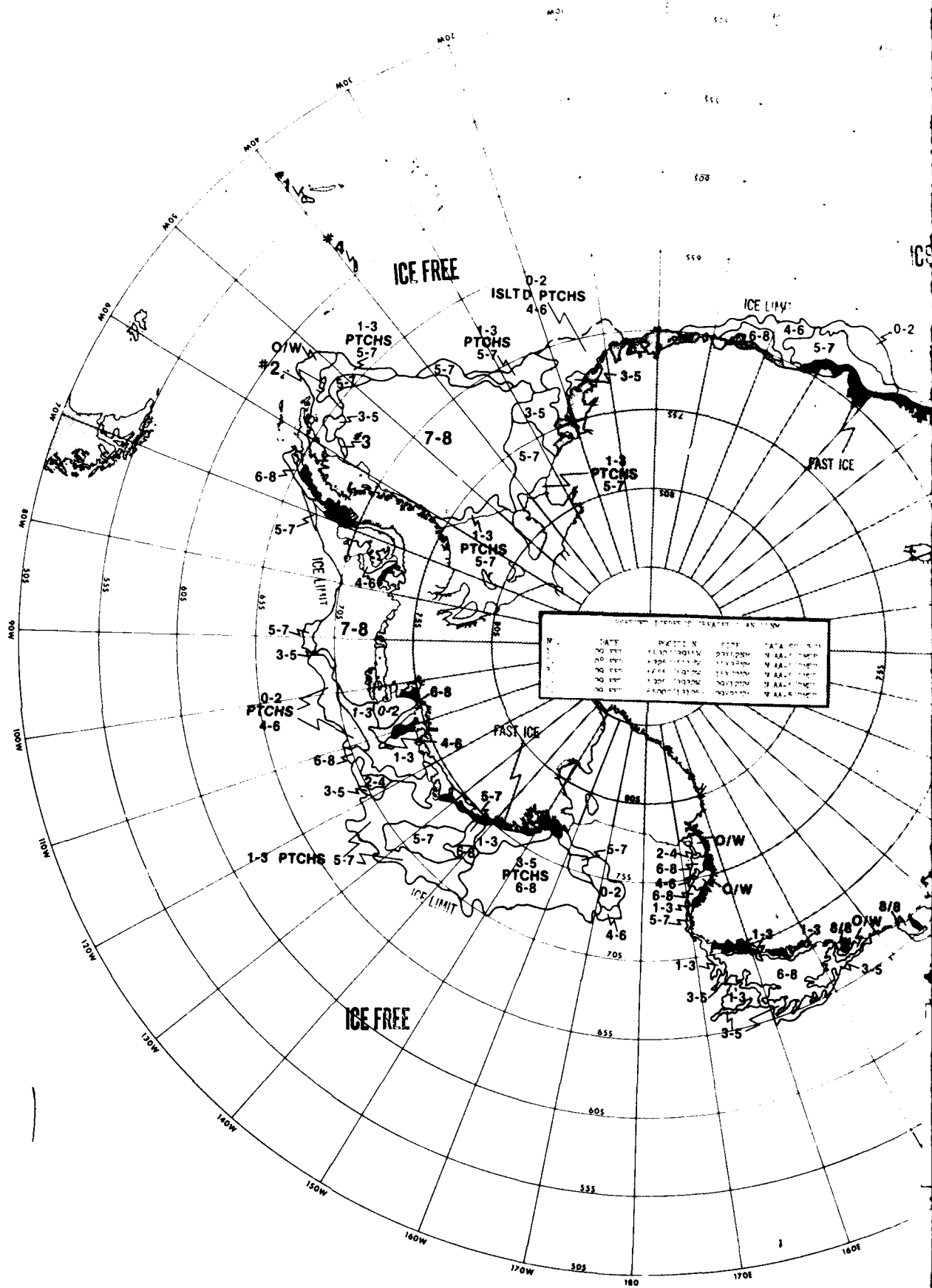
**Northern Ice Limit**

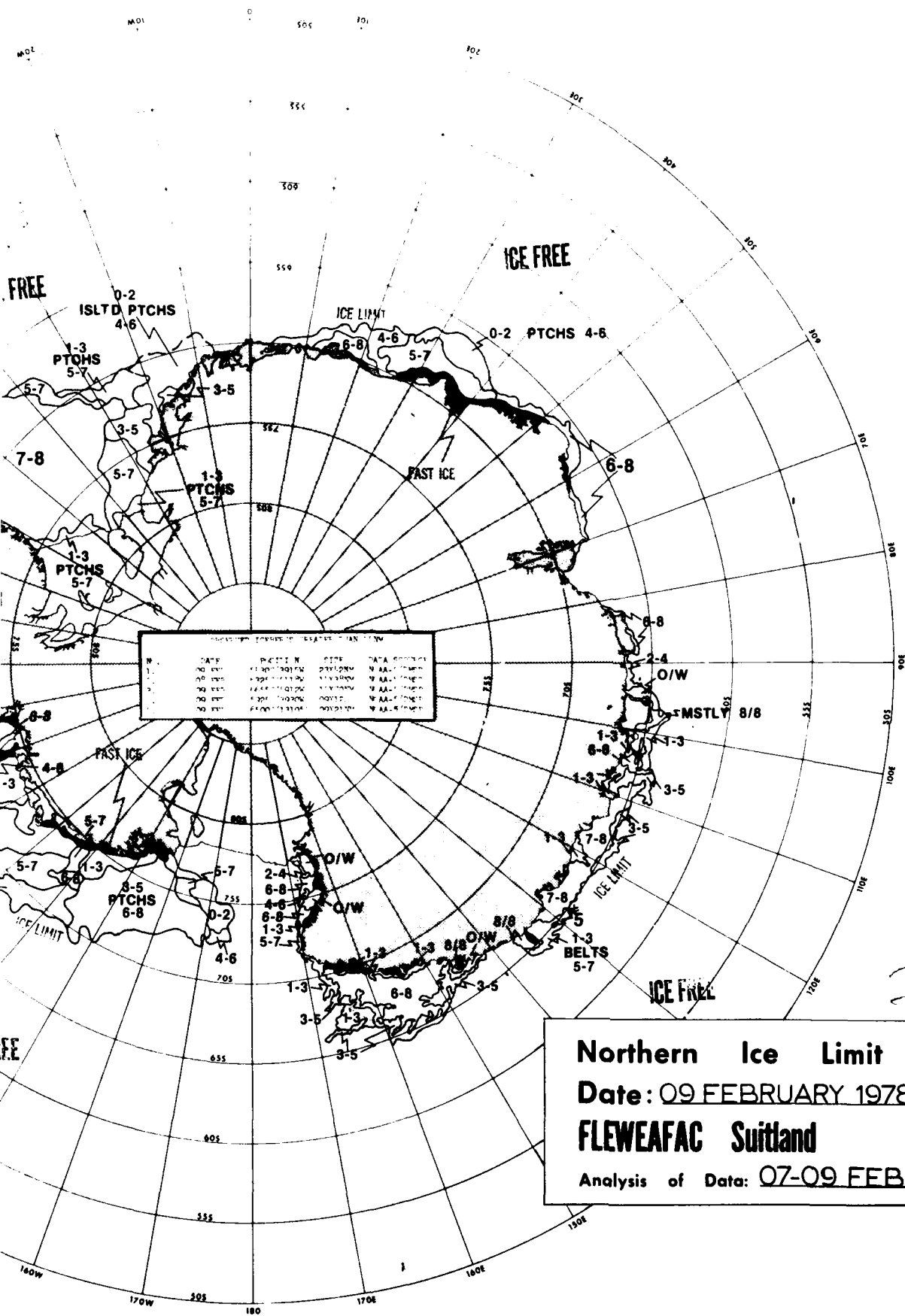
**Date: 02 FEBRUARY 1978**

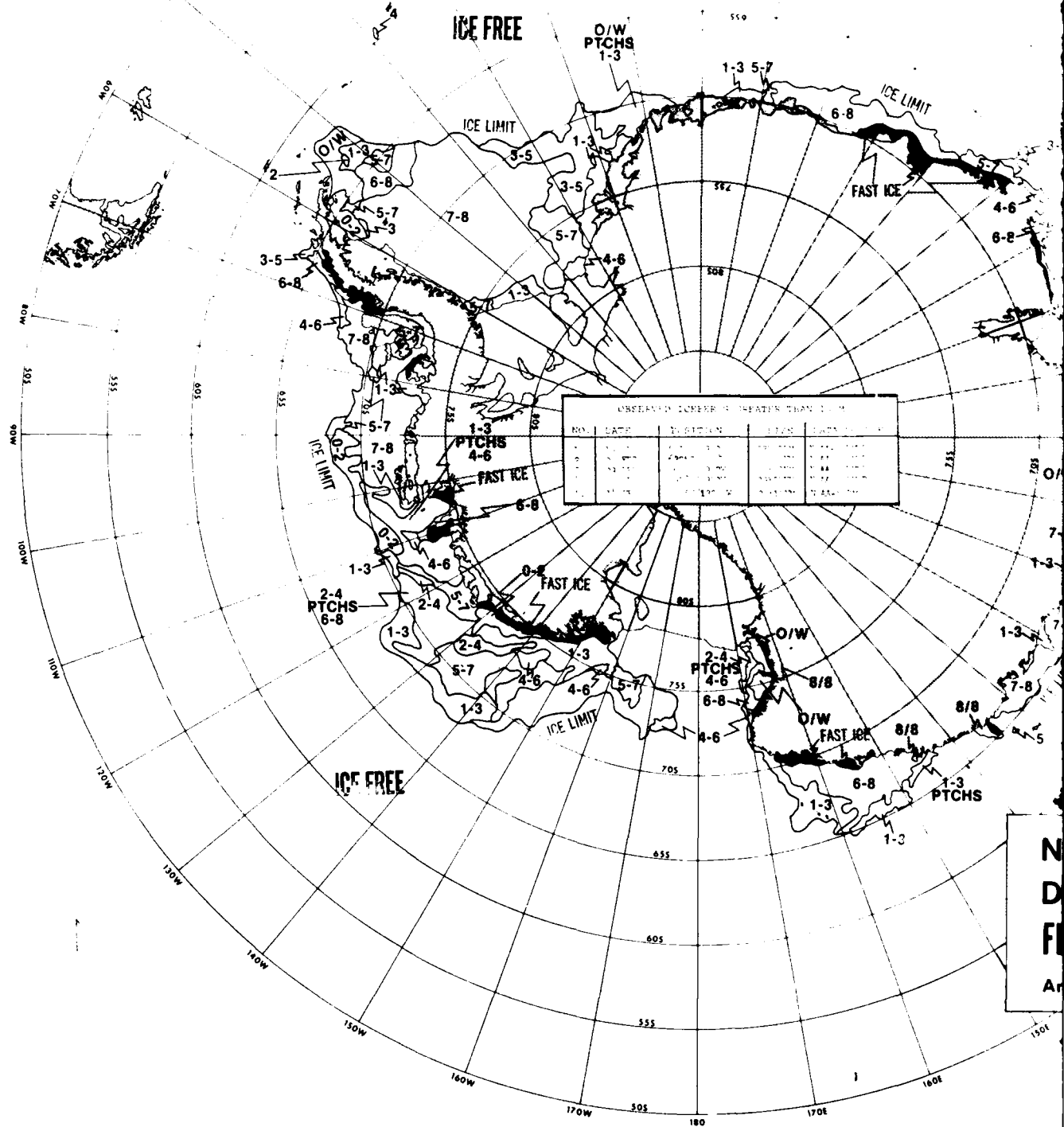
**FLEWEAFAC Suitland**

**Analysis of Data: 31 JAN - 02 FEB**

Q

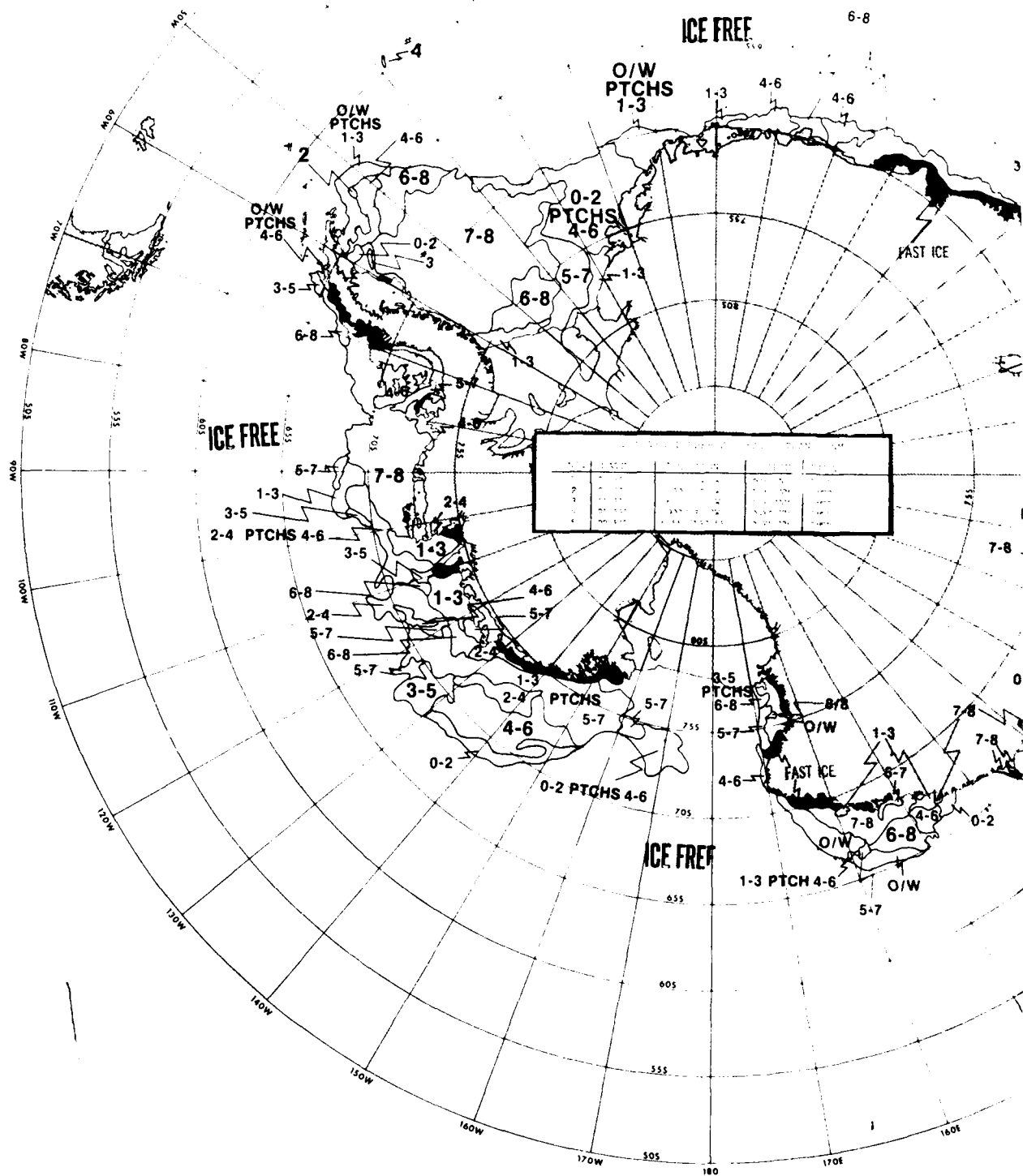


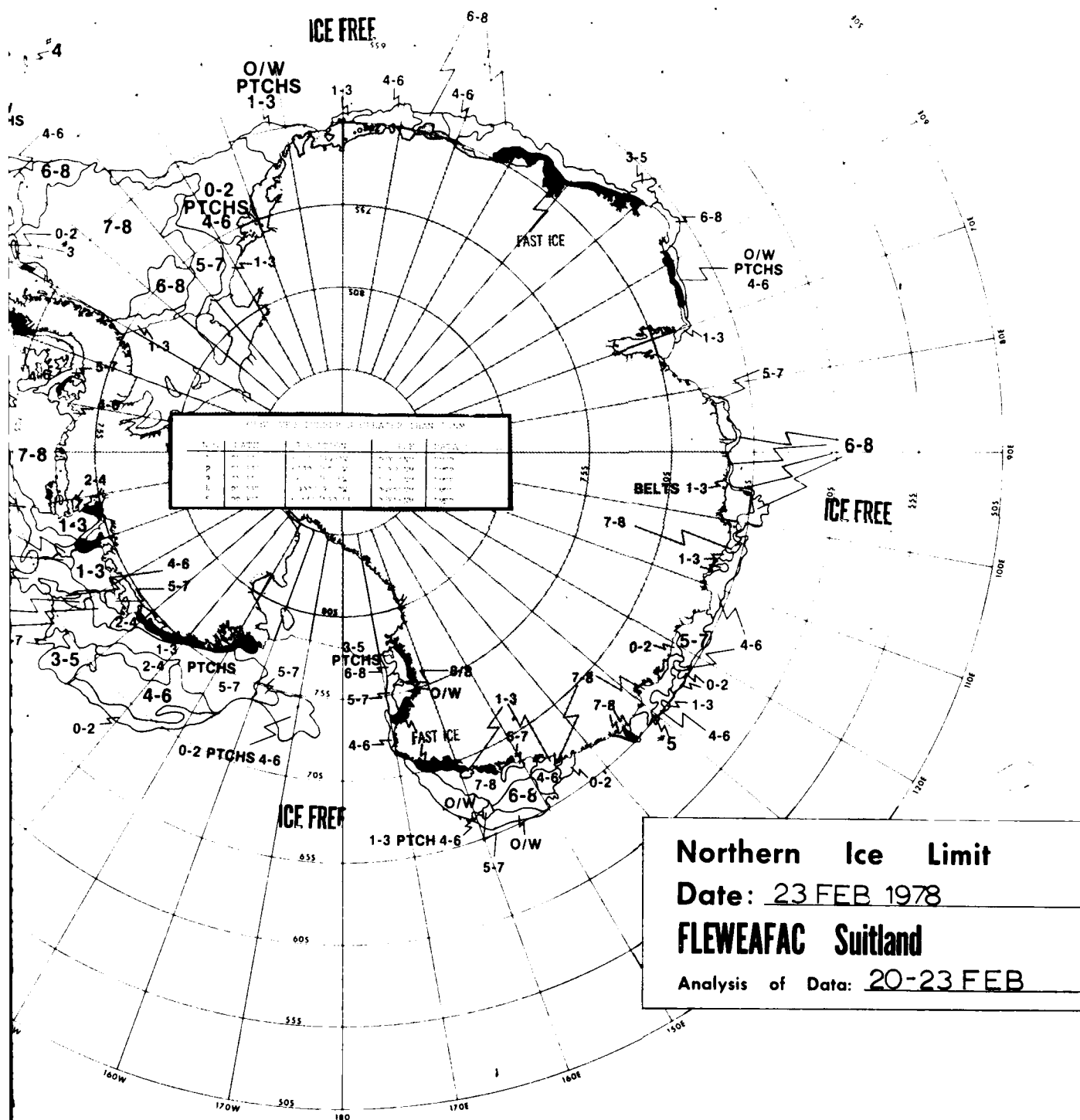




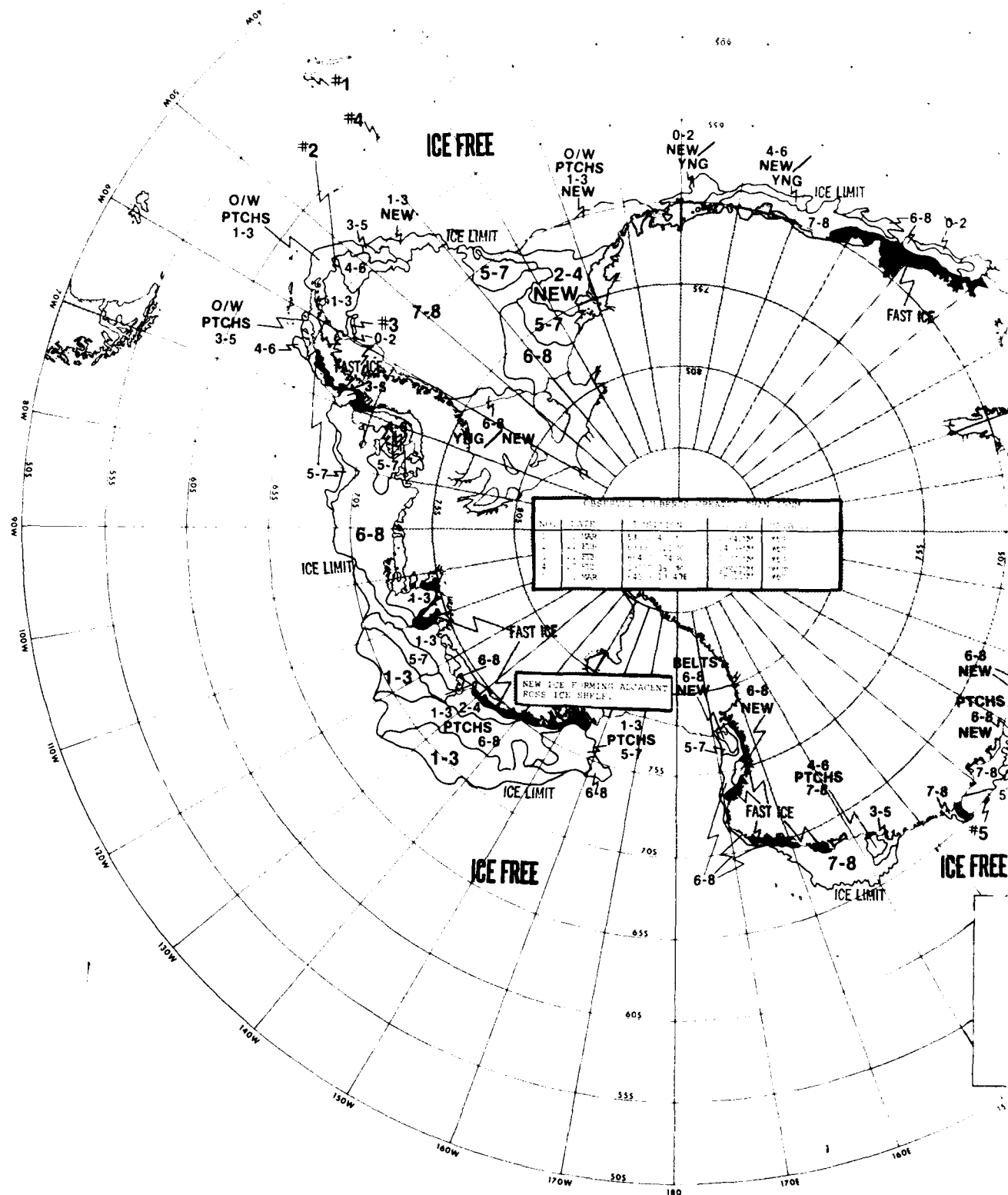


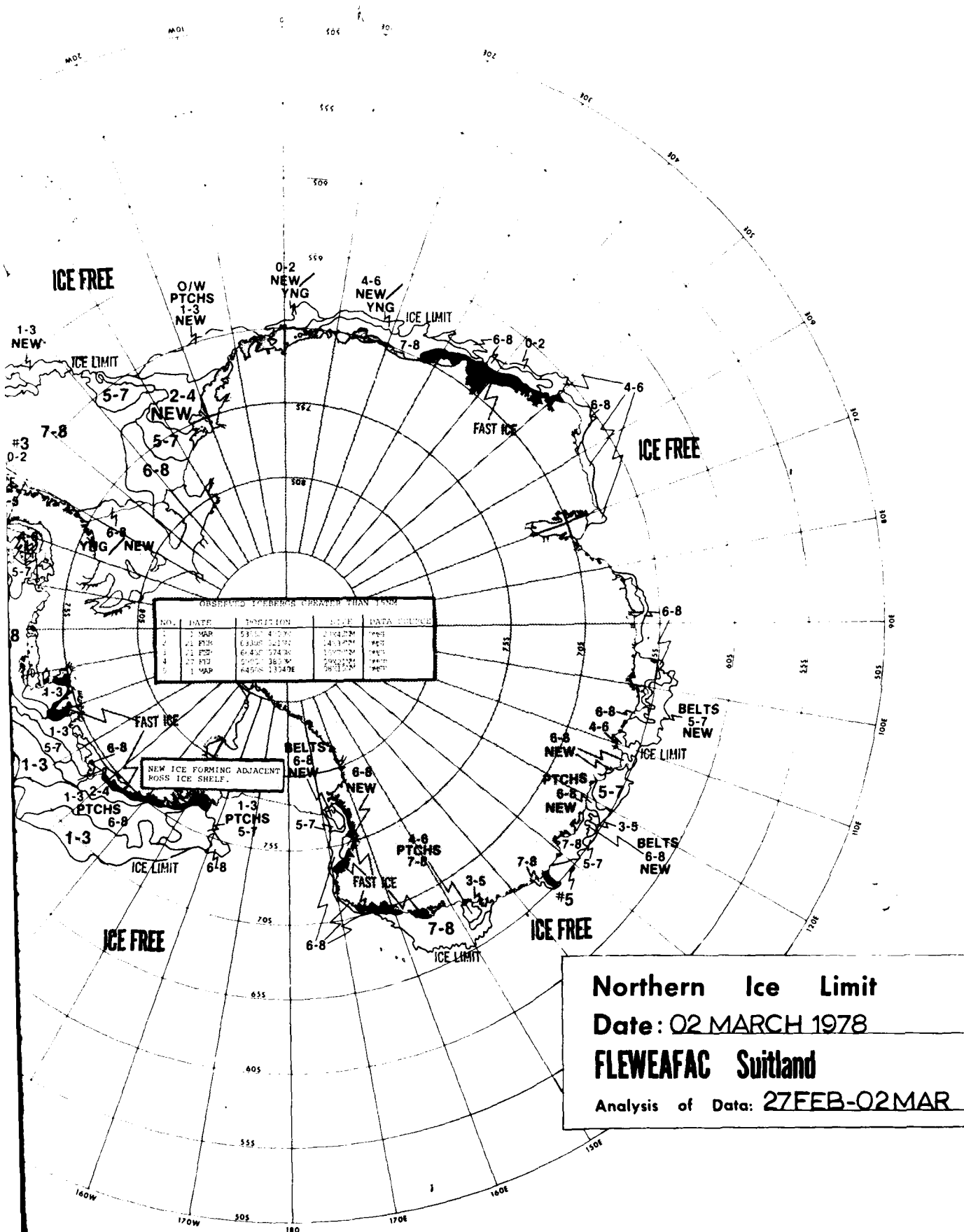






2





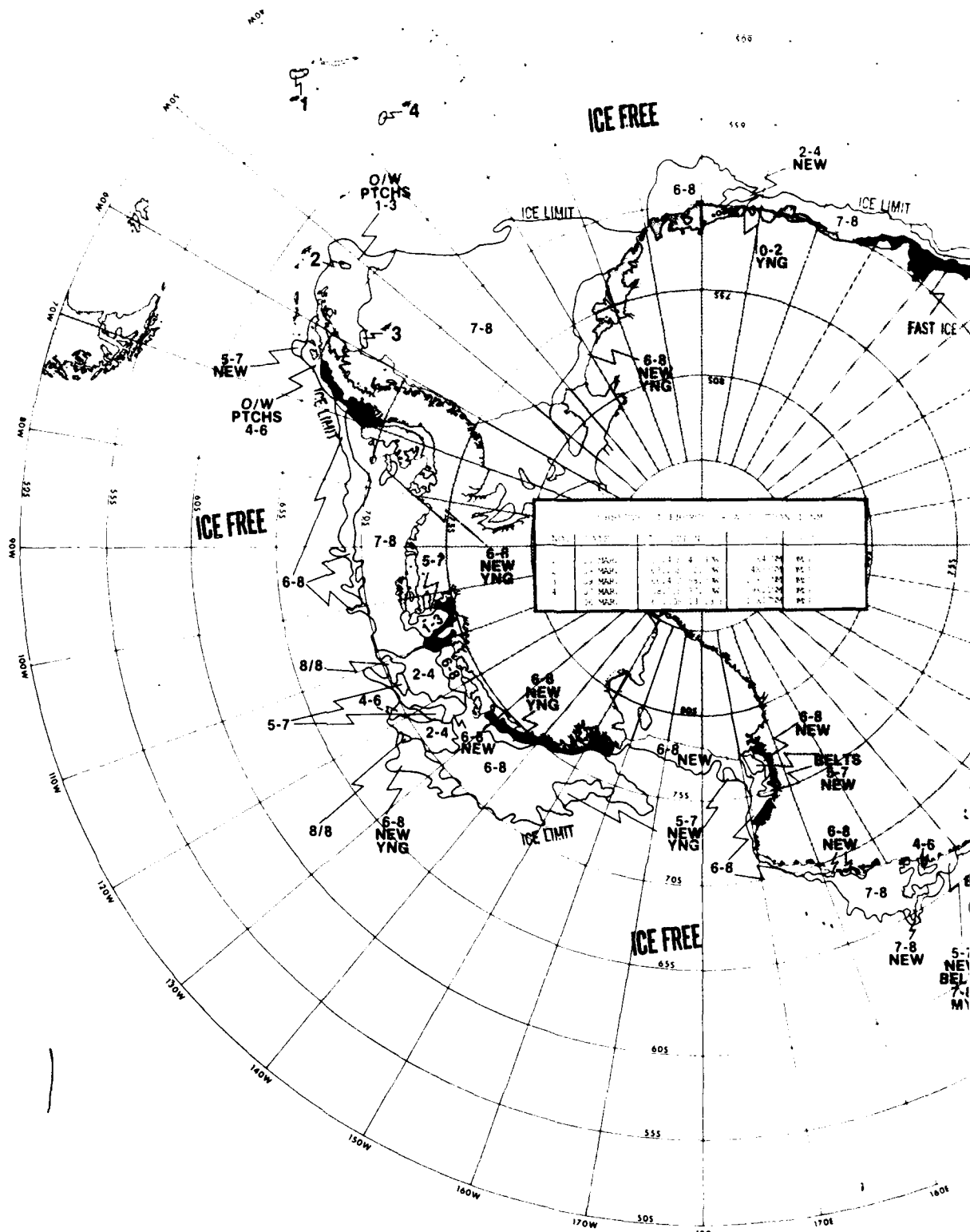
**Northern Ice Limit**

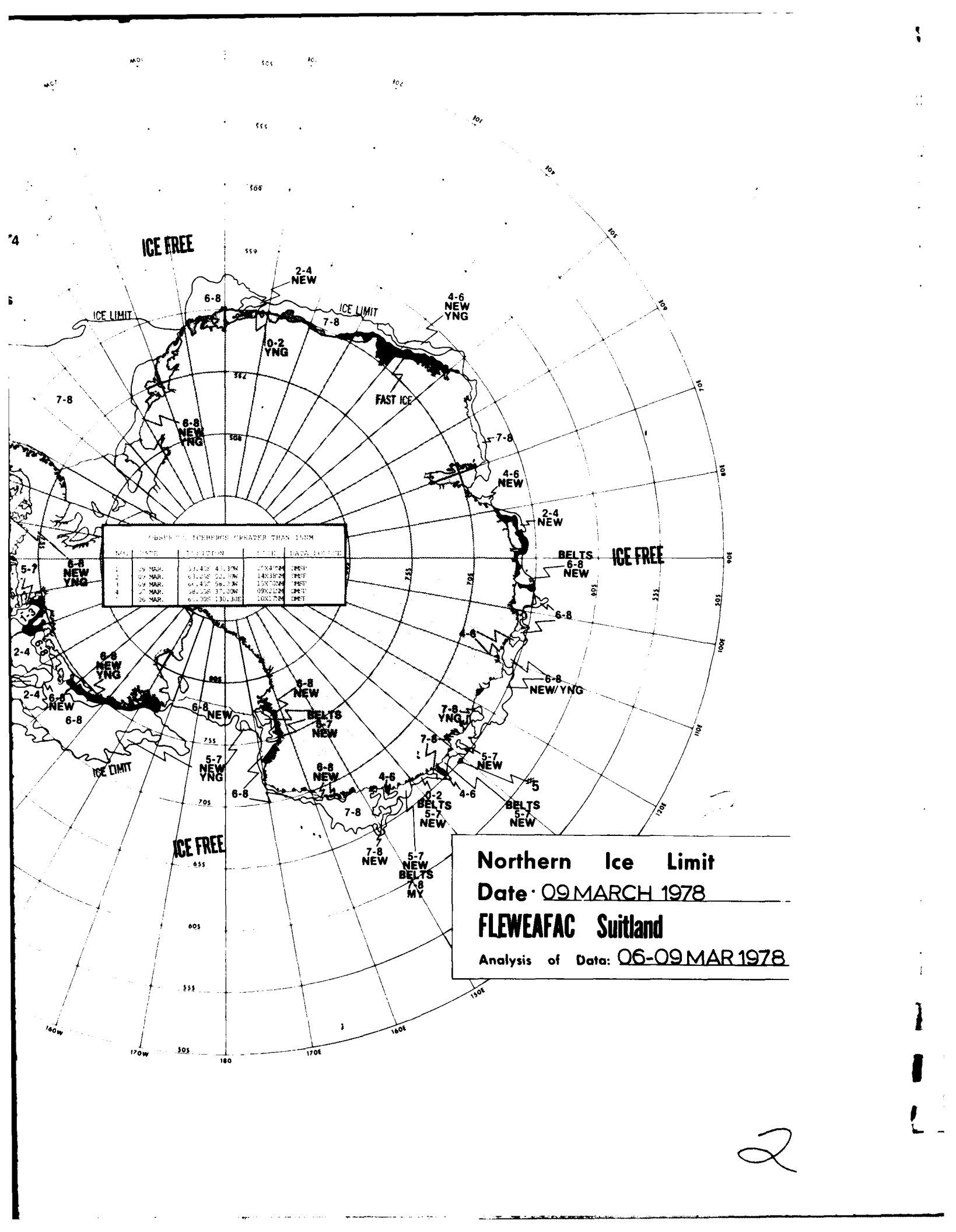
**Date: 02 MARCH 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 27FEB-02MAR**

2





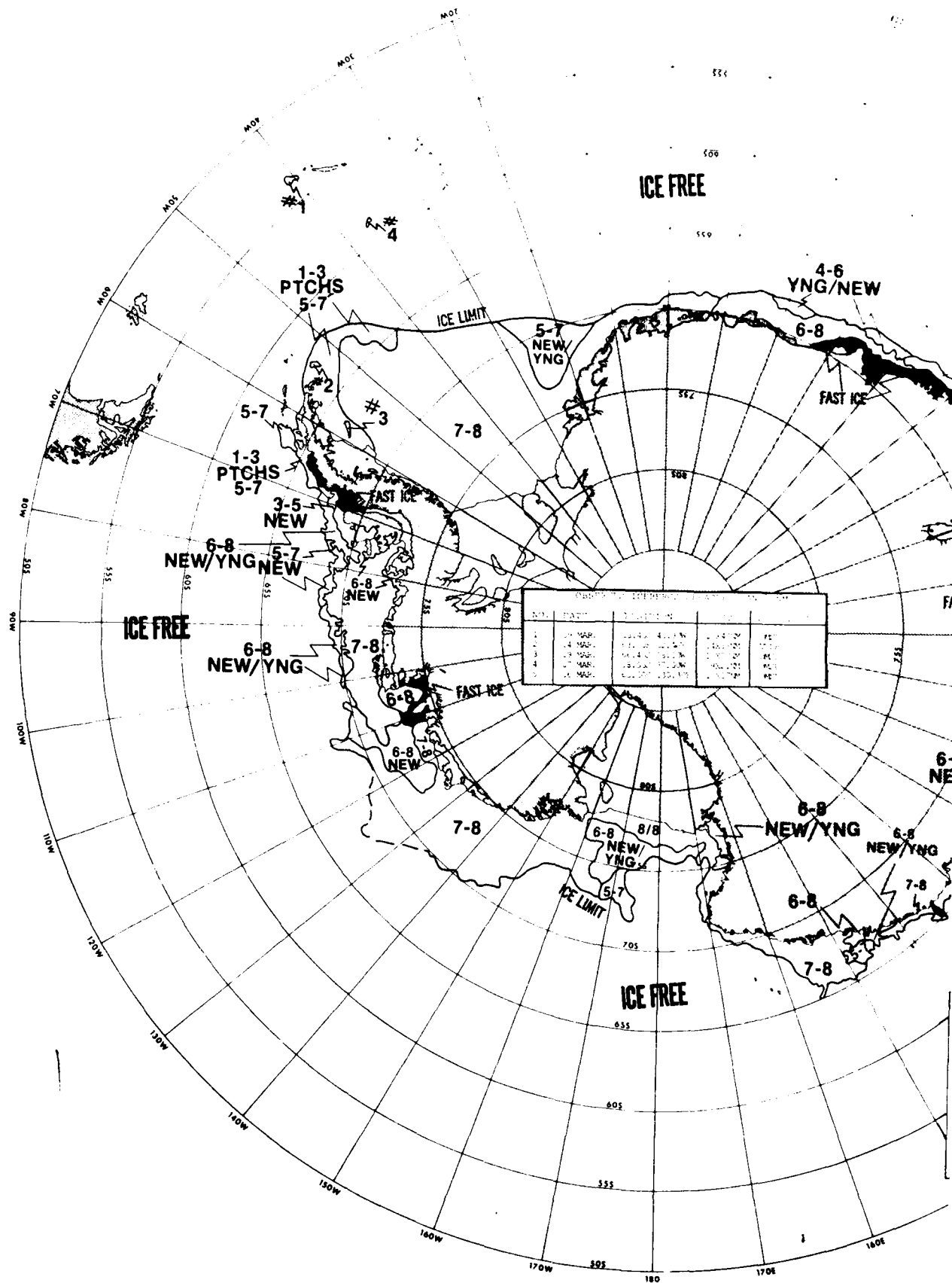
Northern Ice Limit

Date: 09 MARCH 1978

FLEWEAFAC Suitland

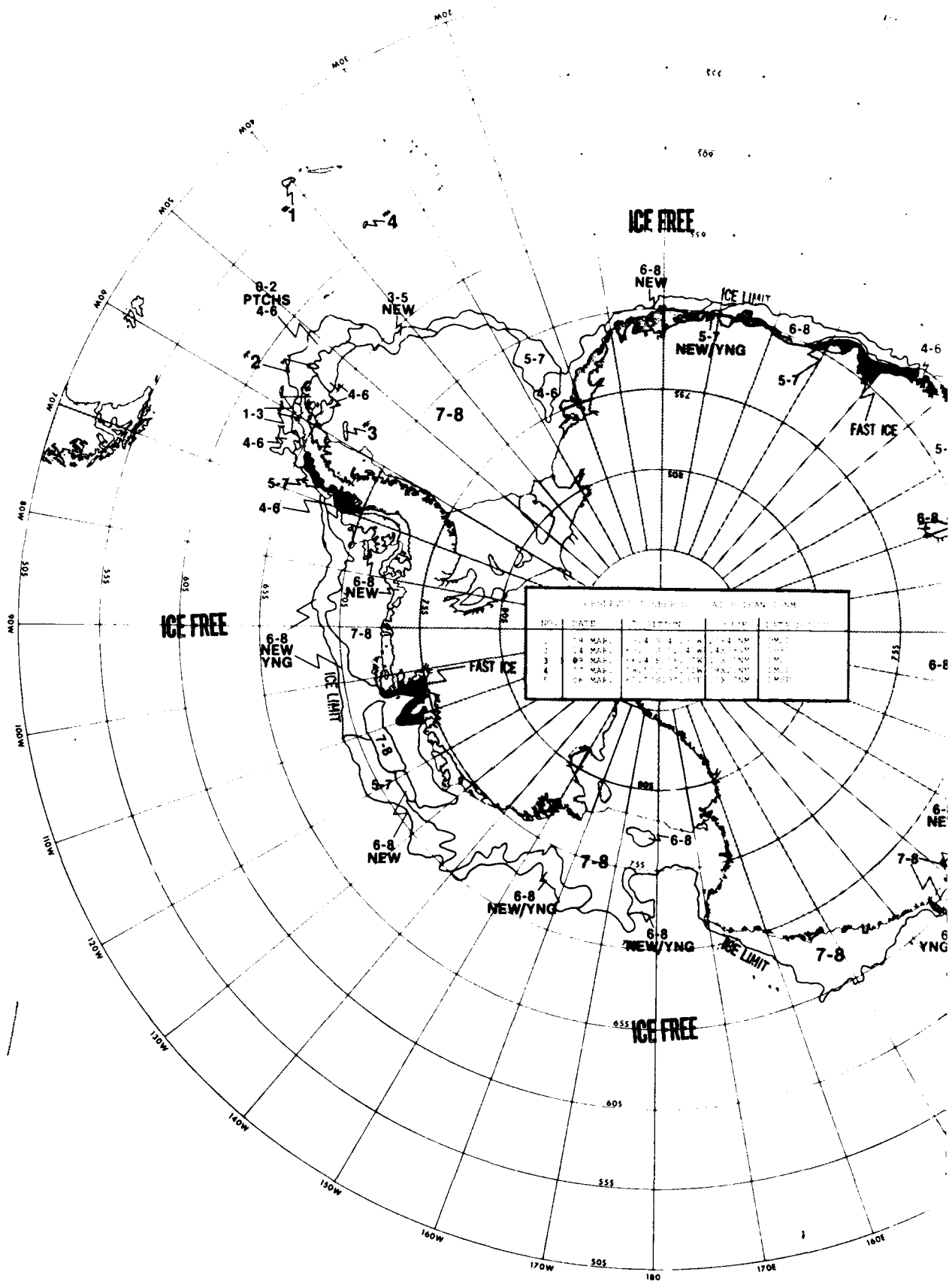
Analysis of Data: 06-09 MAR 1978

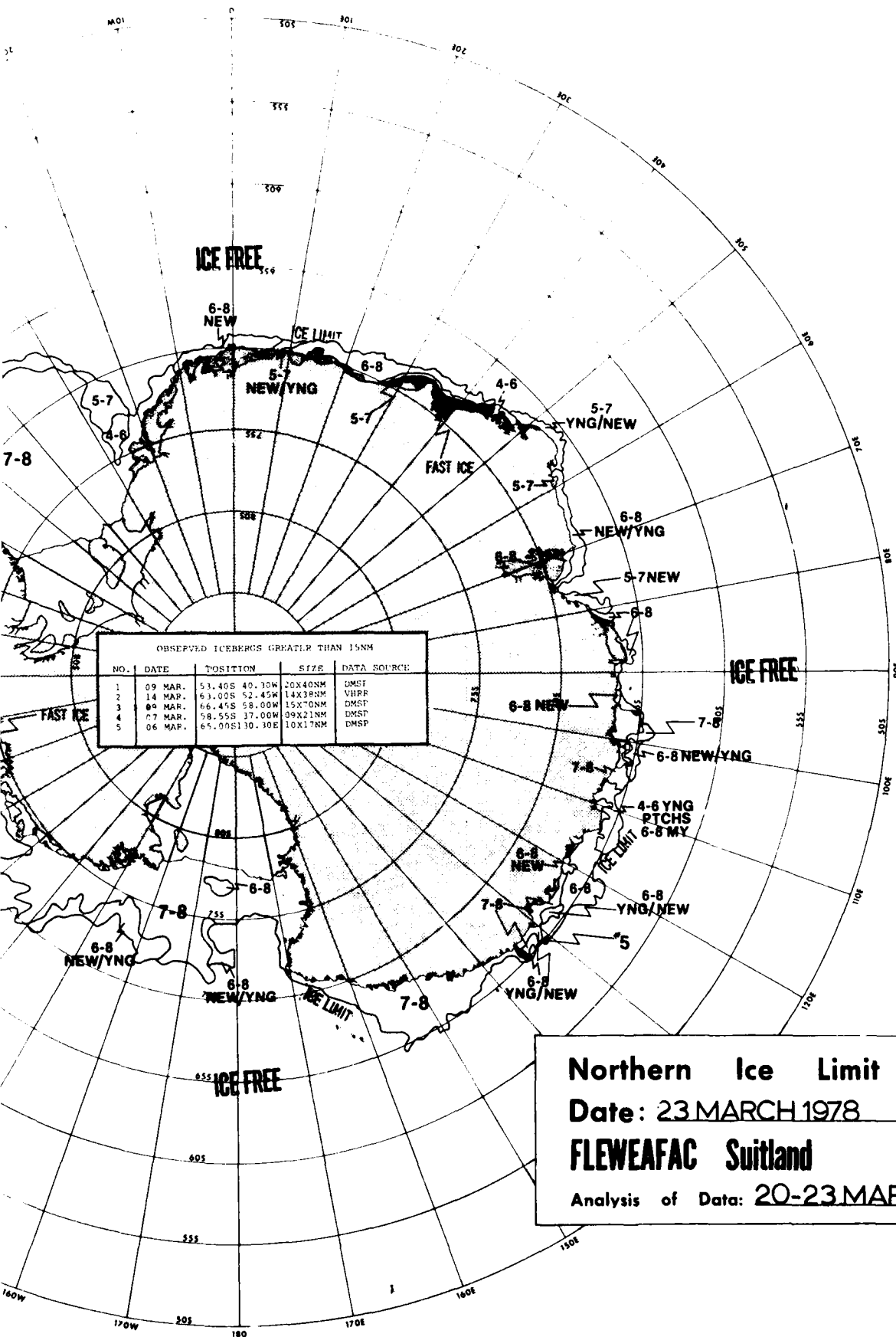
2

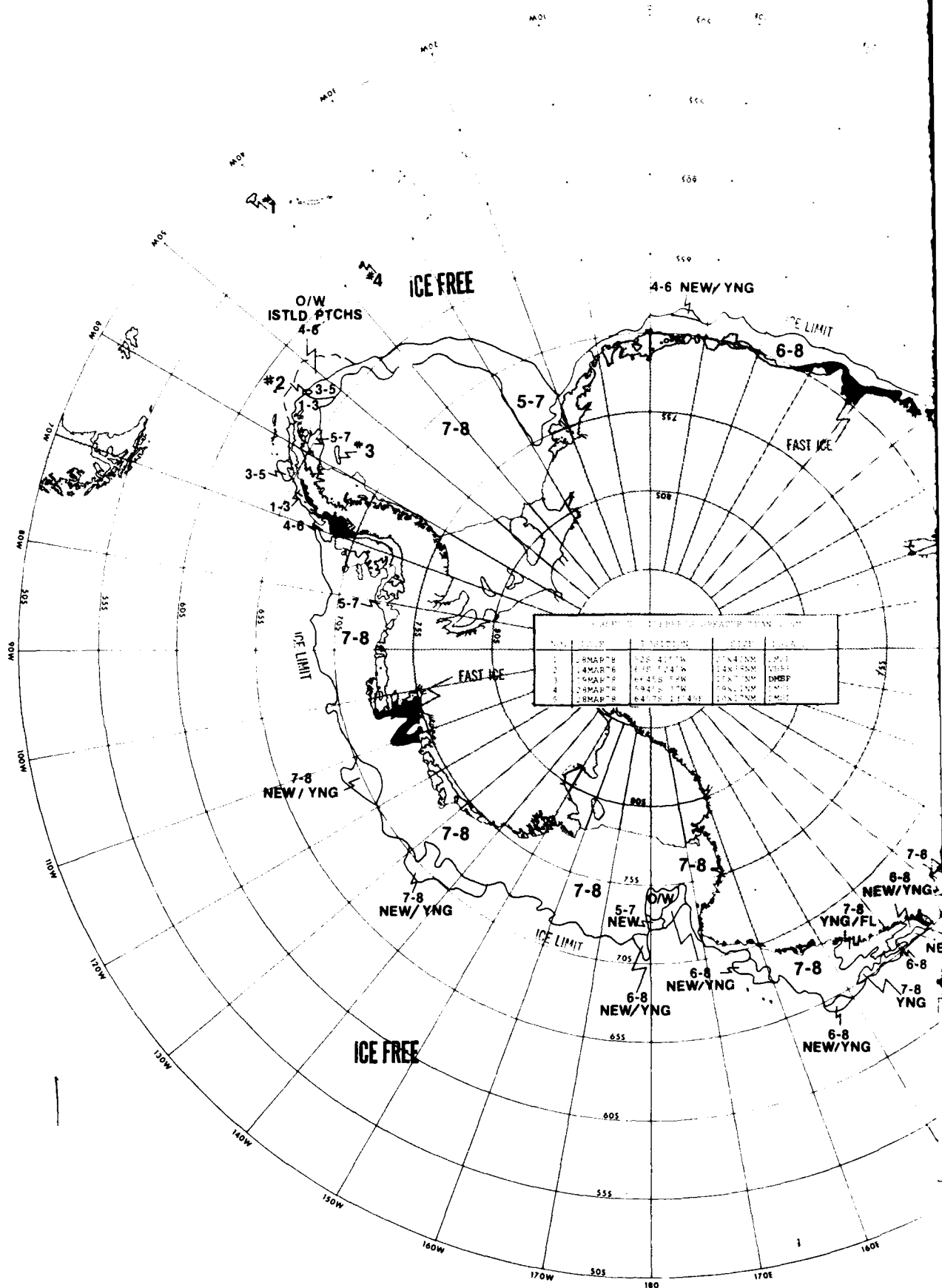


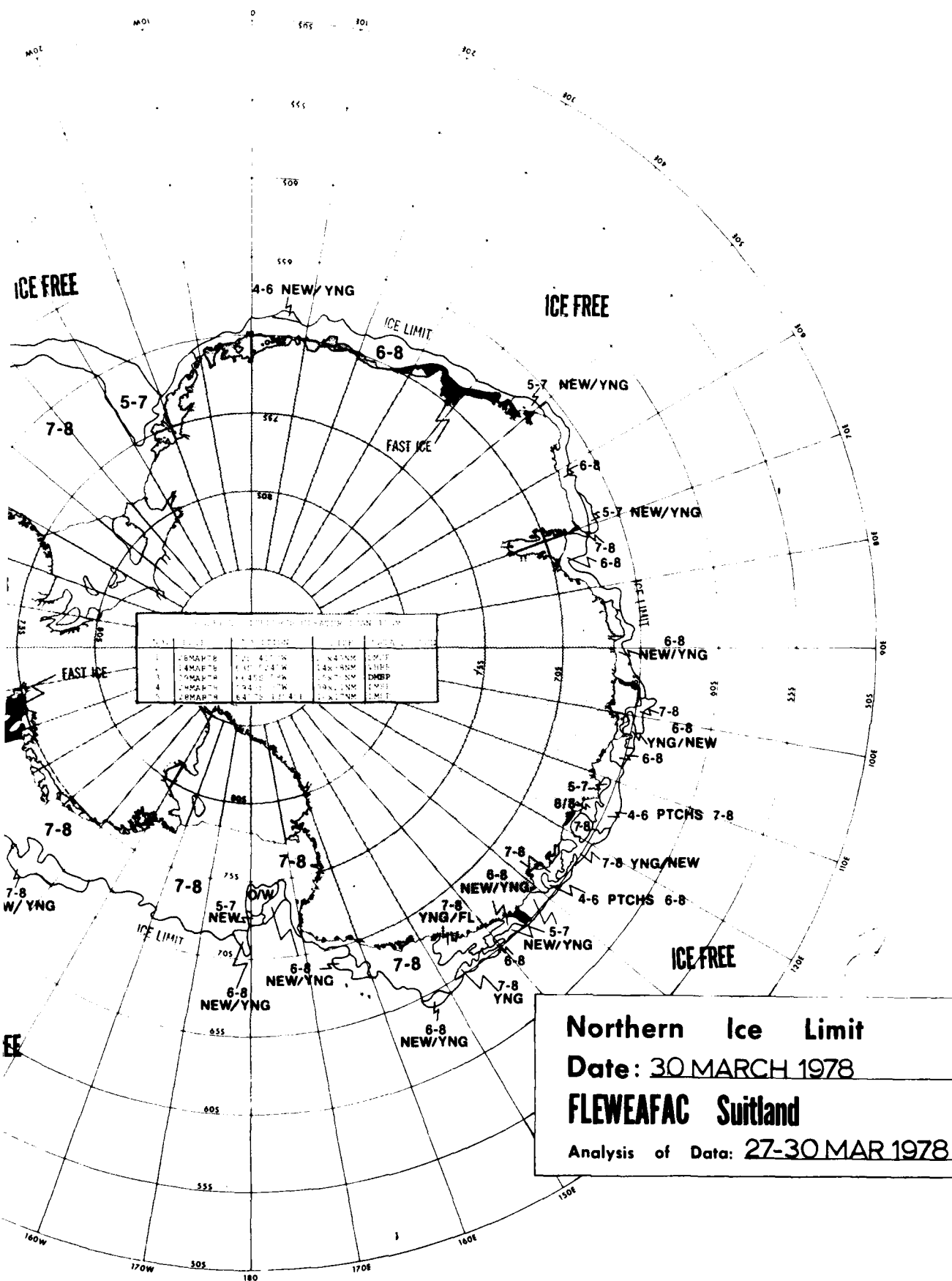




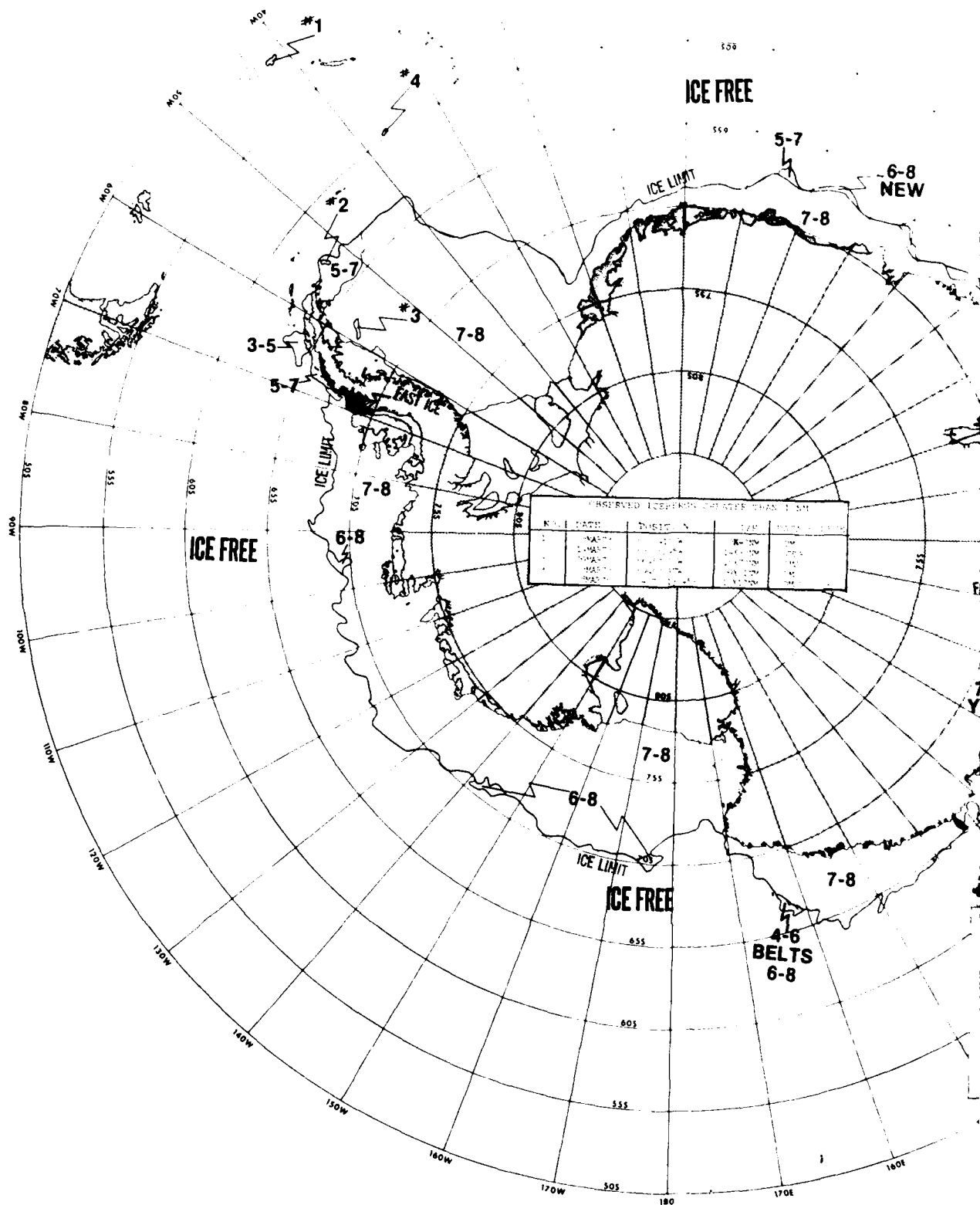


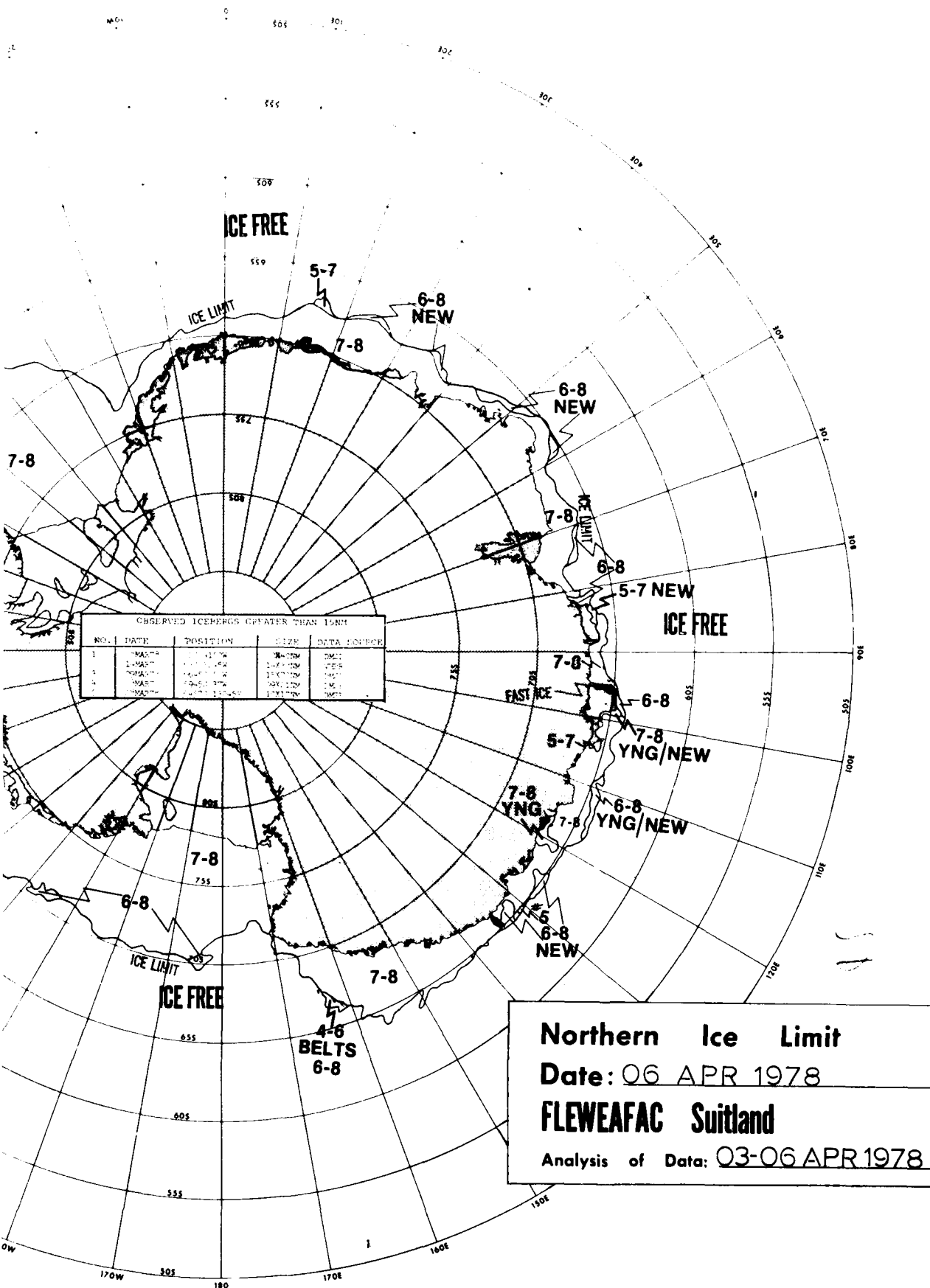






2





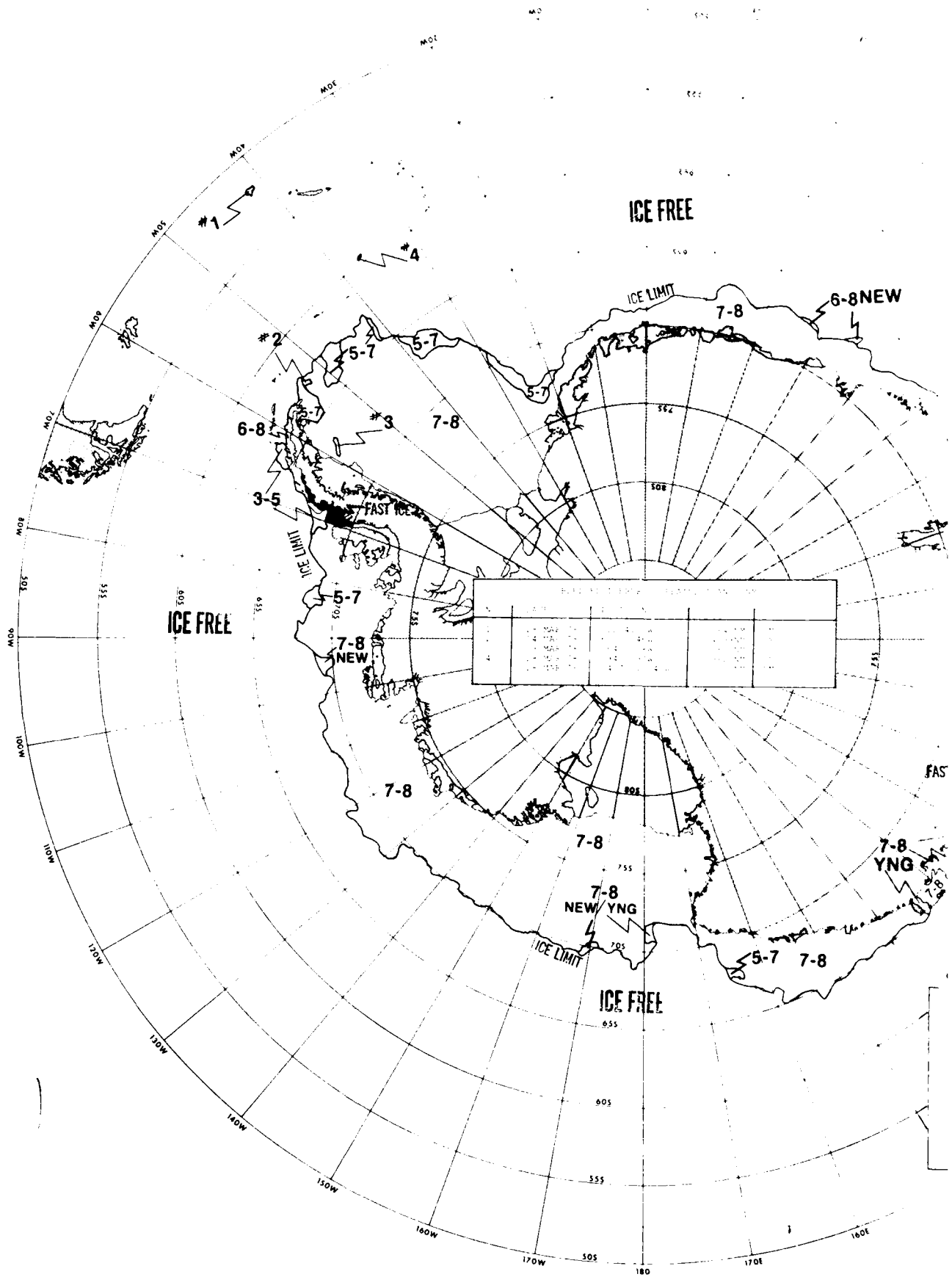
**Northern Ice Limit**

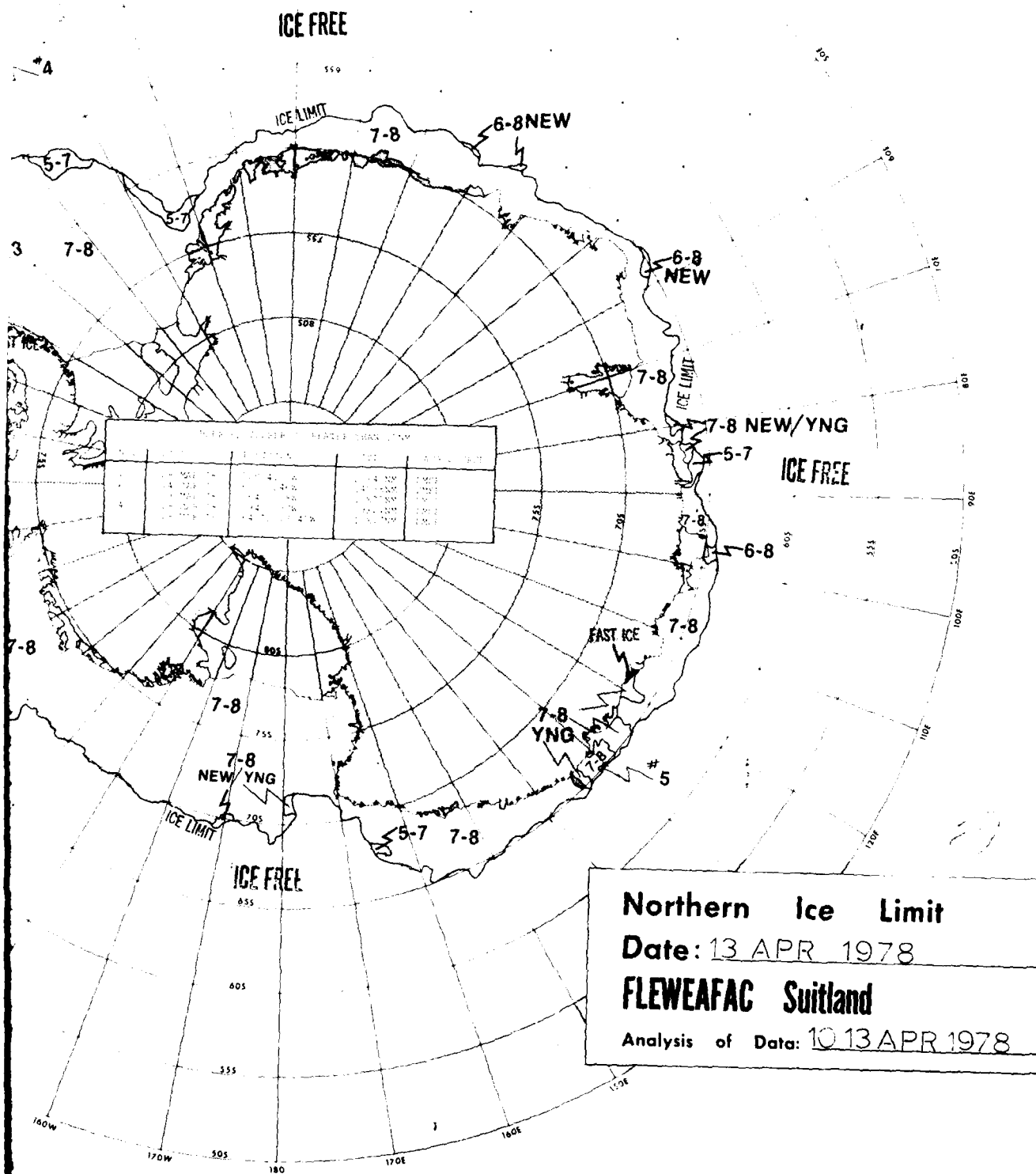
**Date: 06 APR 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 03-06 APR 1978**

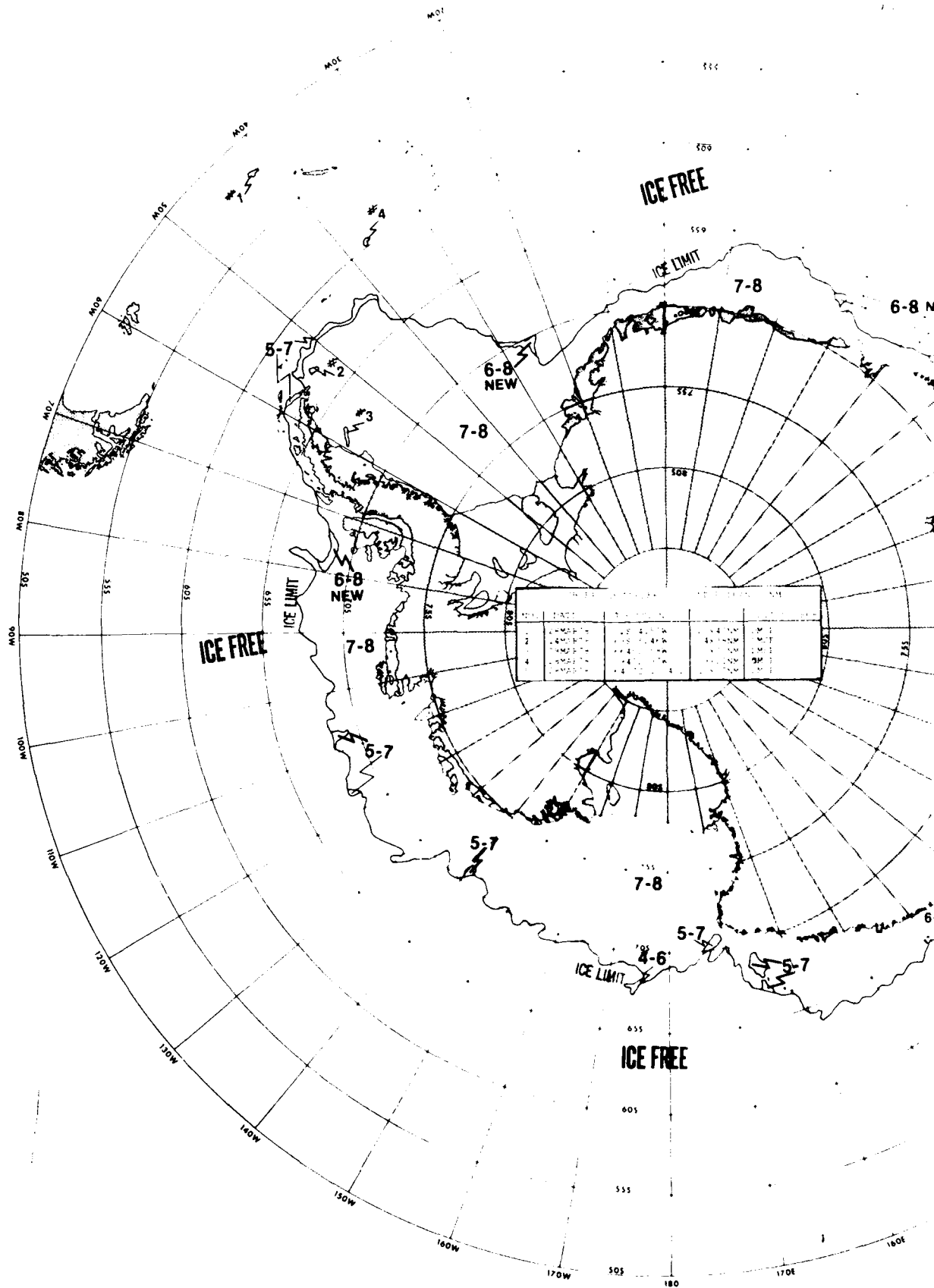
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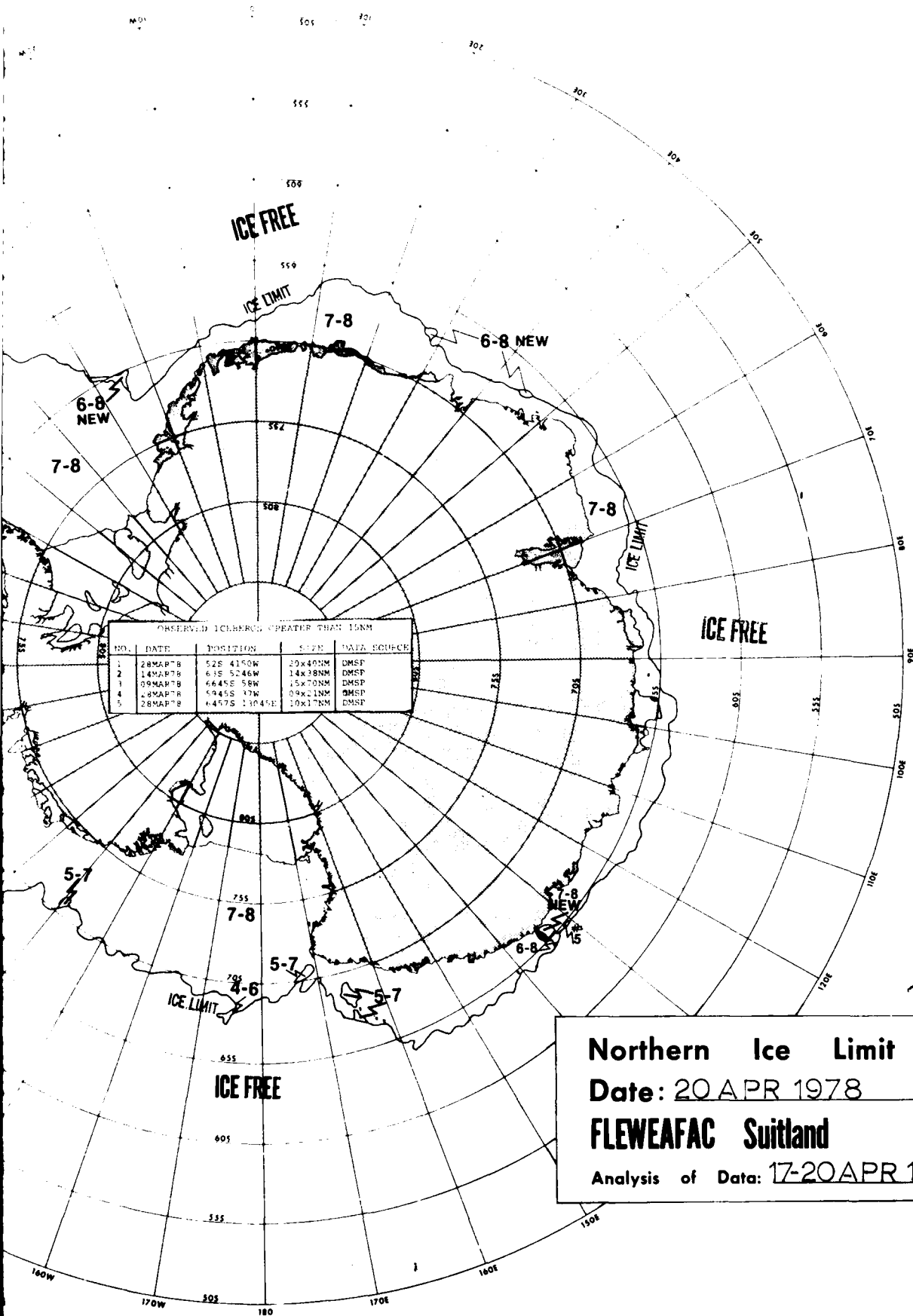




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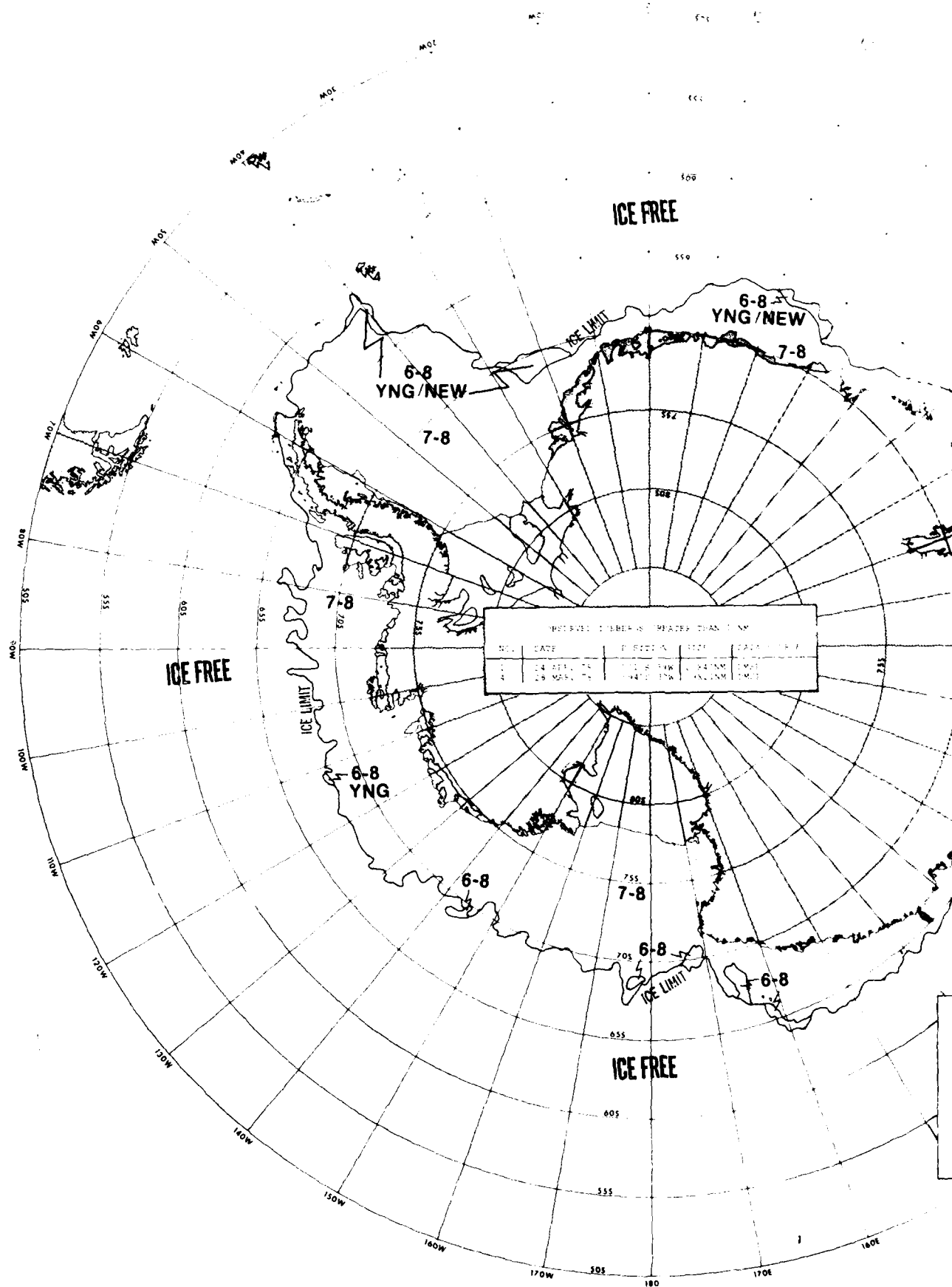


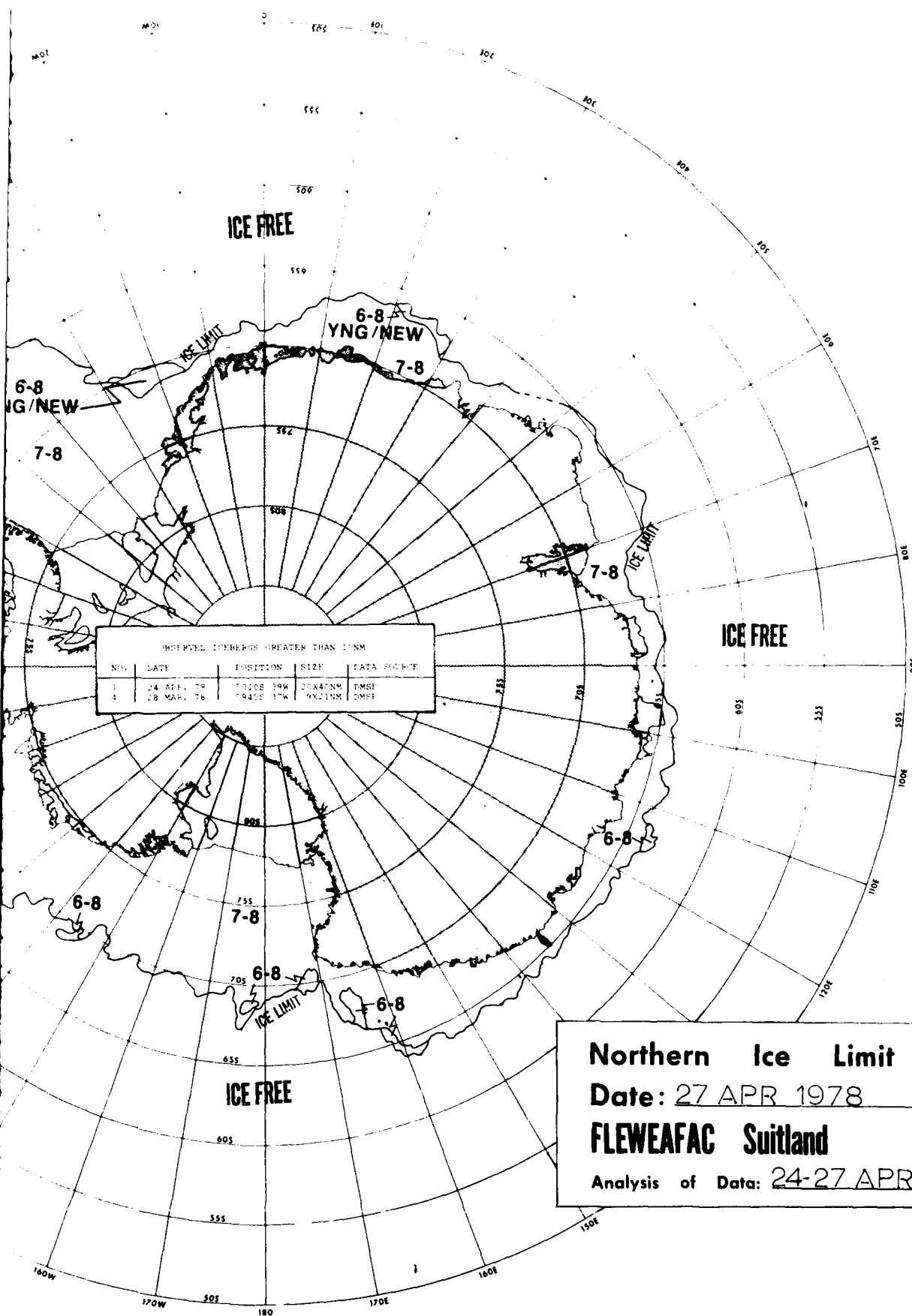
**Northern Ice Limit**

**Date: 20 APR 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 17-20 APR 1978**





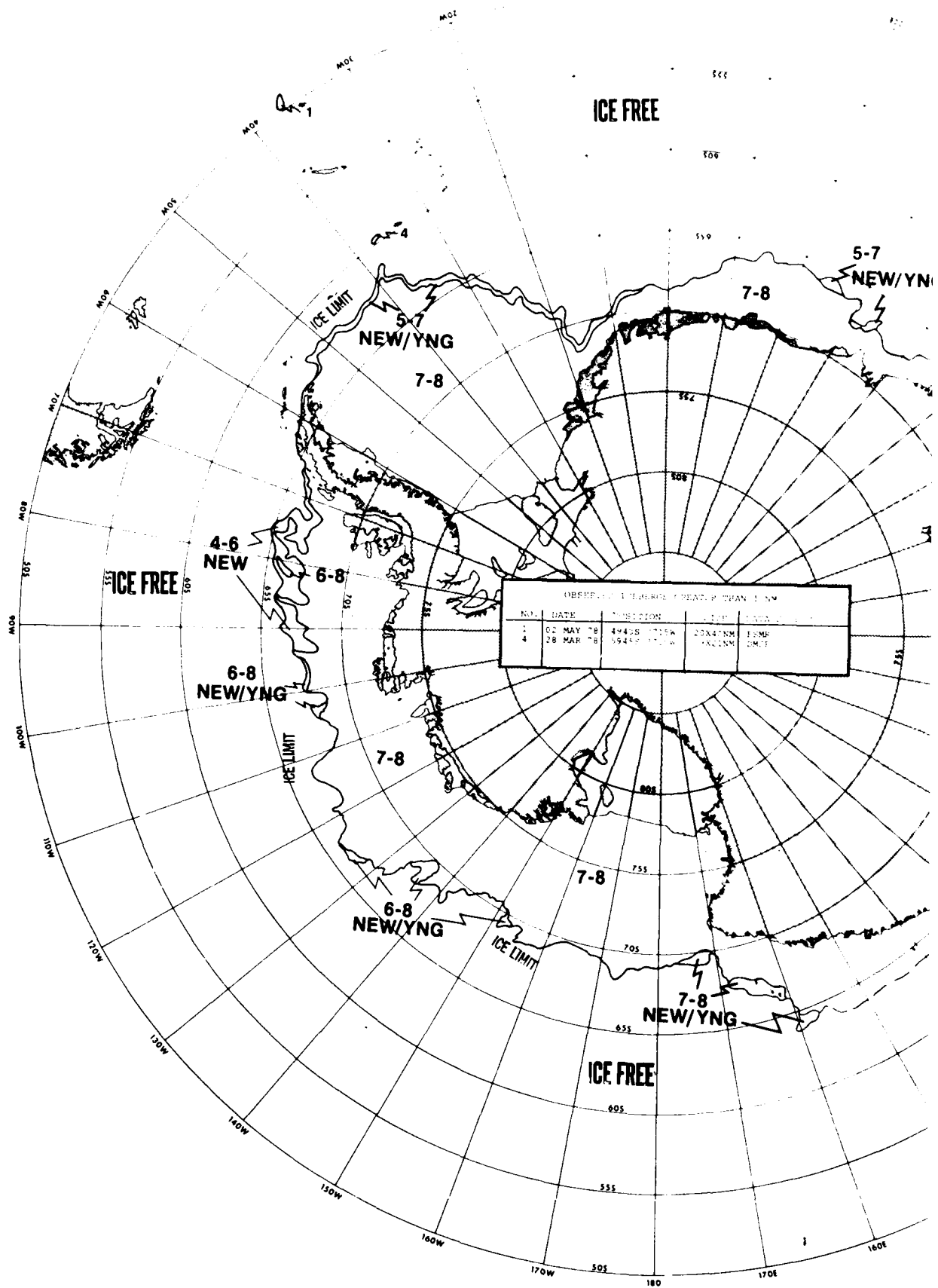
**Northern Ice Limit**

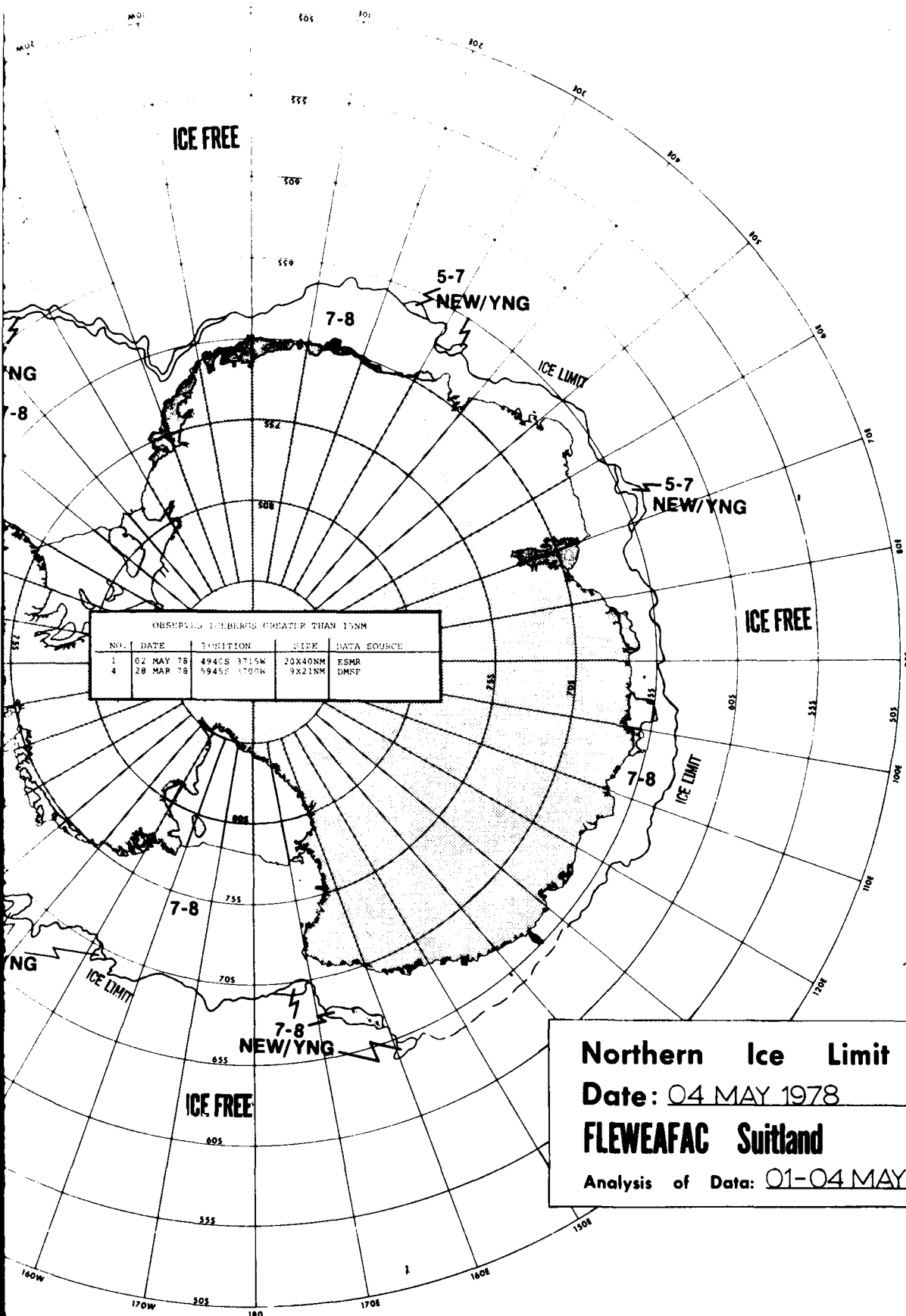
**Date: 27 APR 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 24-27 APR 1978**

Q



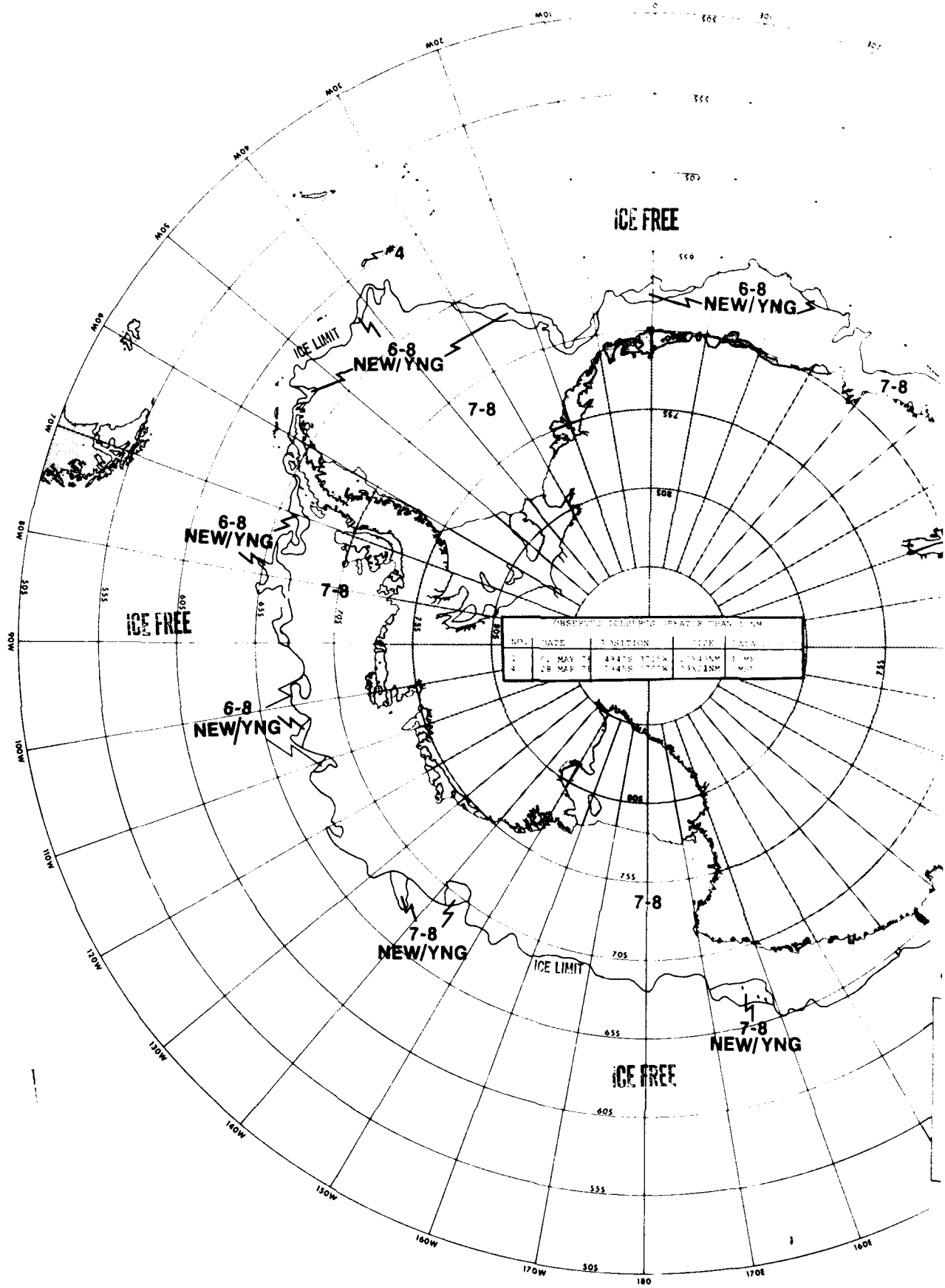


**Northern Ice Limit**

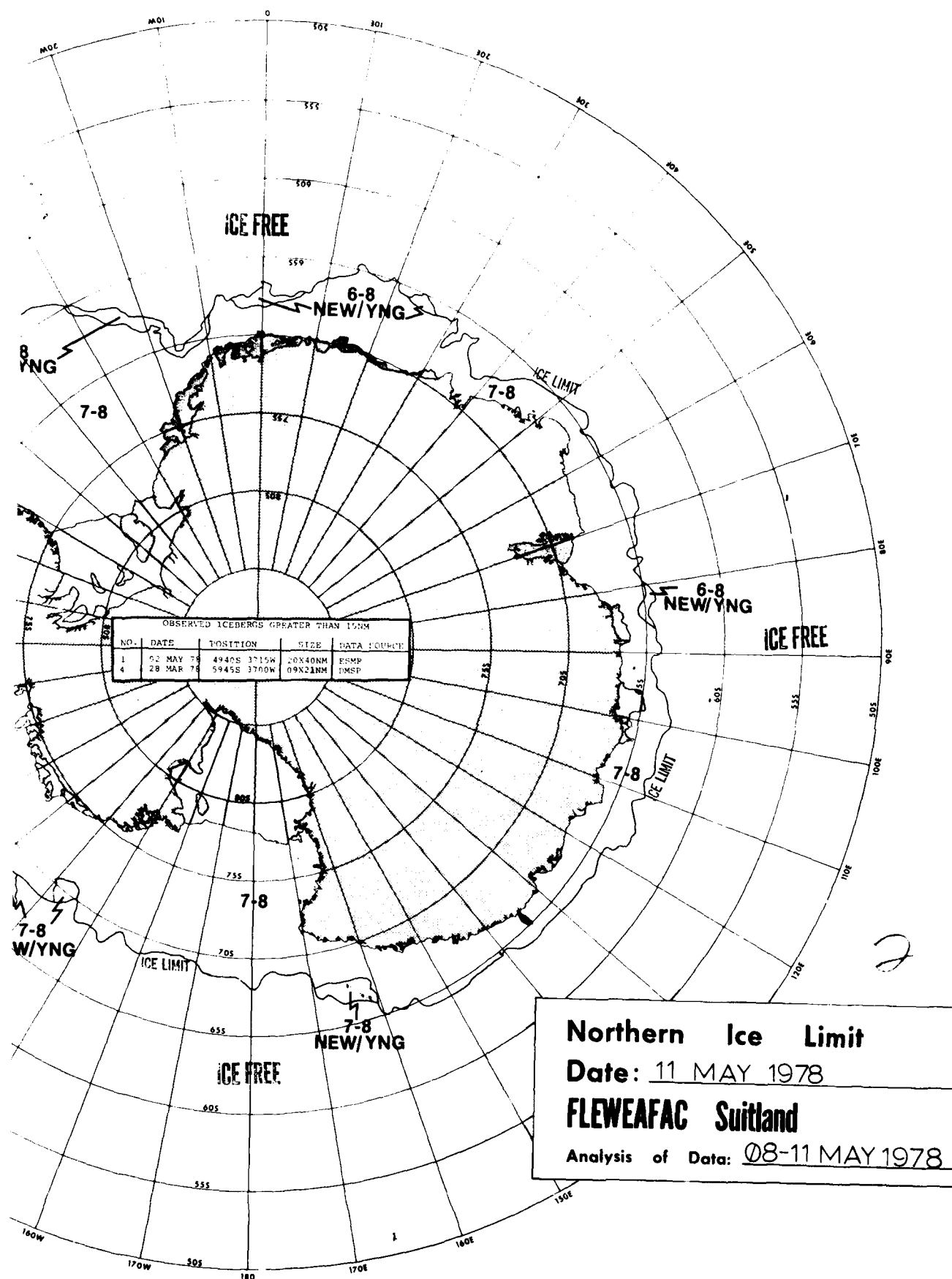
**Date:** 04 MAY 1978

**FLEWEAFAC Suitland**

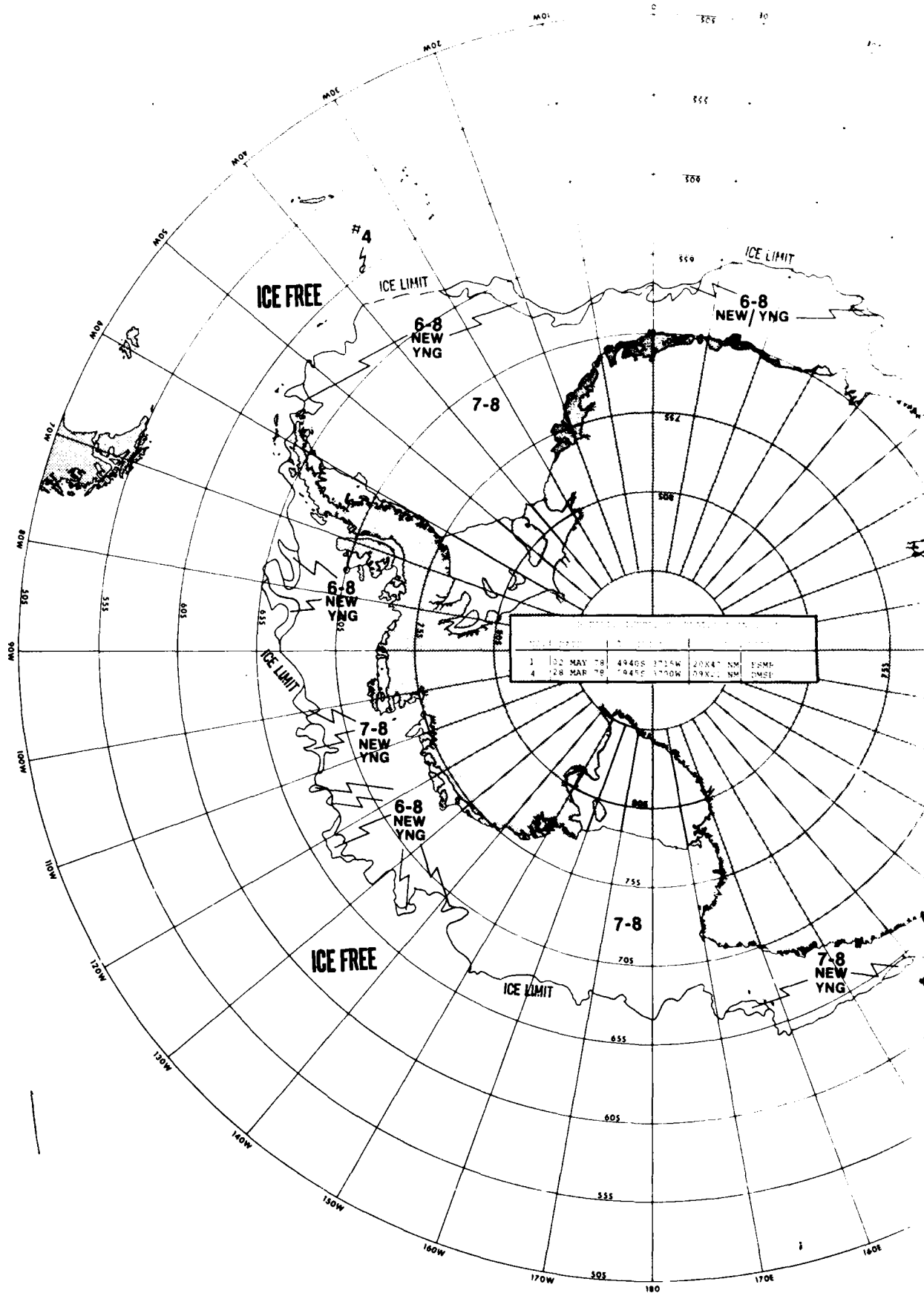
**Analysis of Data:** 01-04 MAY 1978

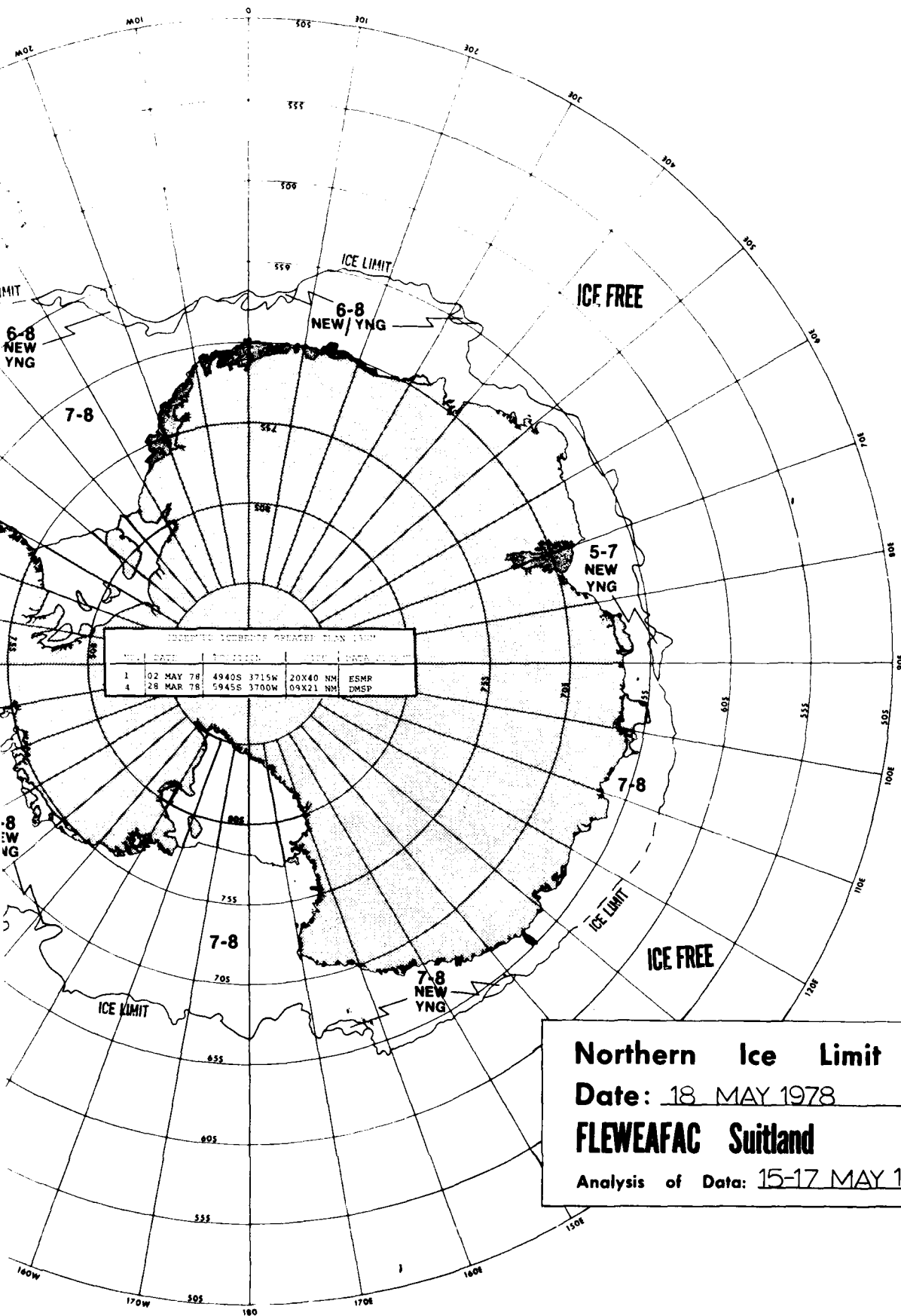


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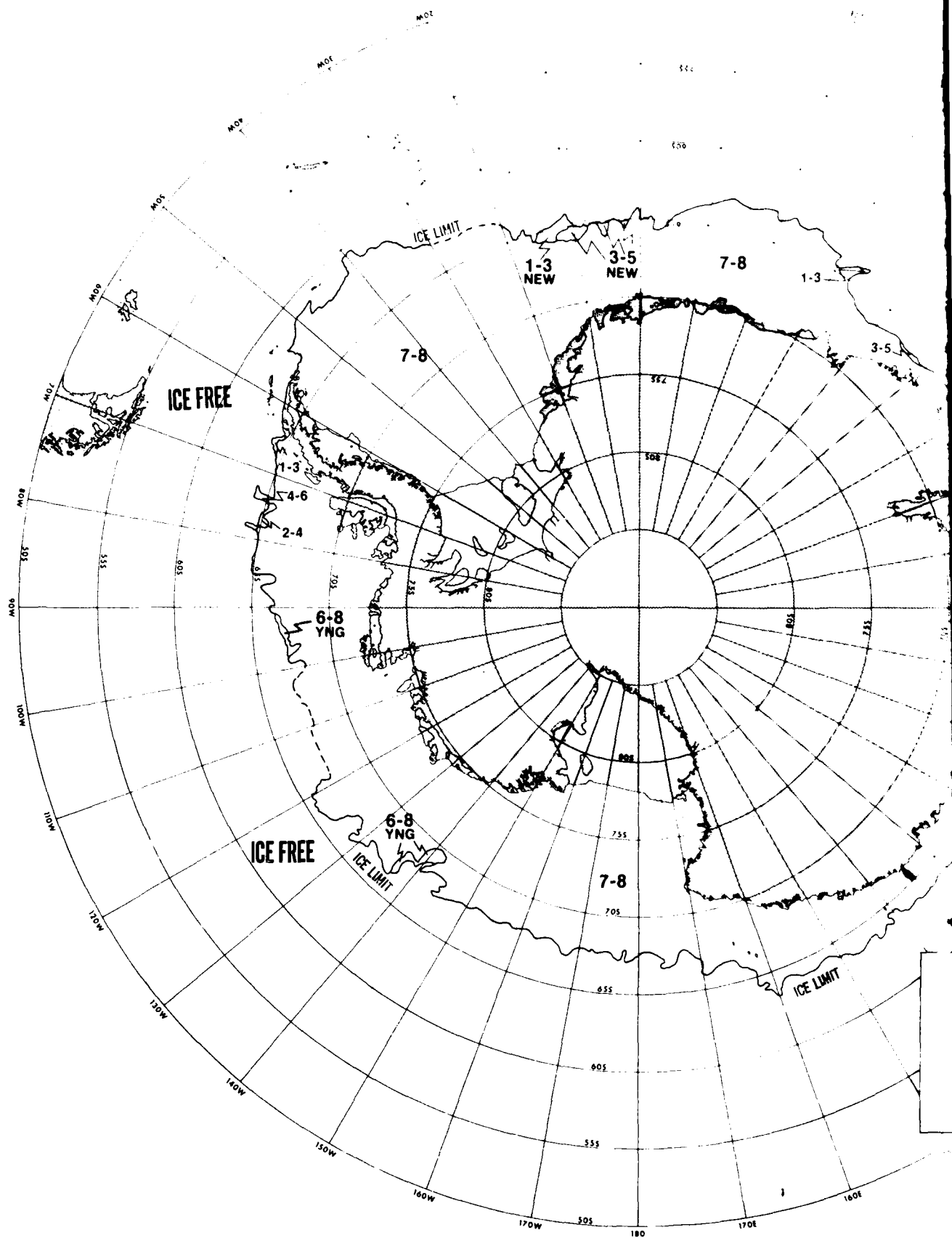


**Northern Ice Limit**

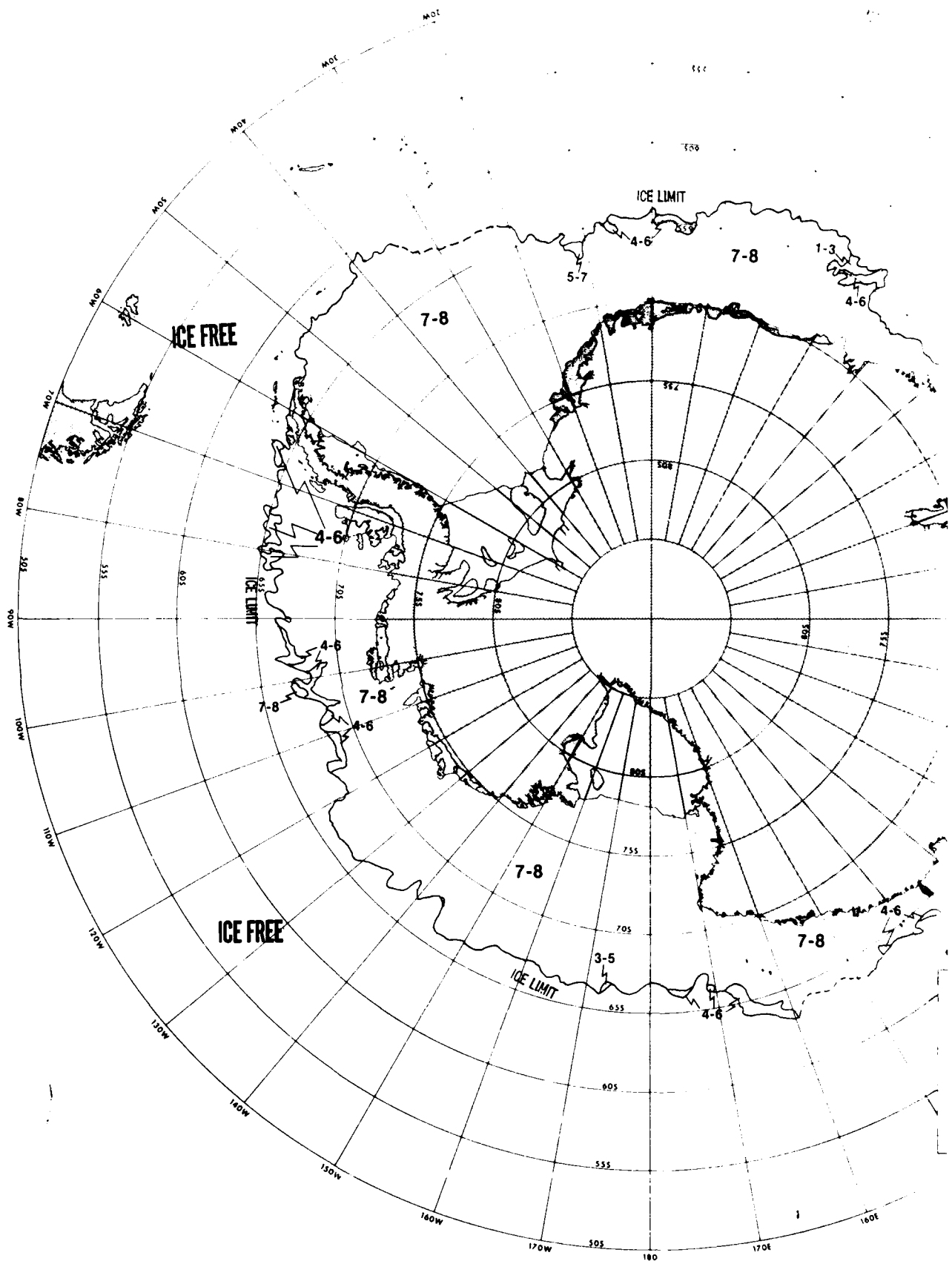
**Date: 18 MAY 1978**

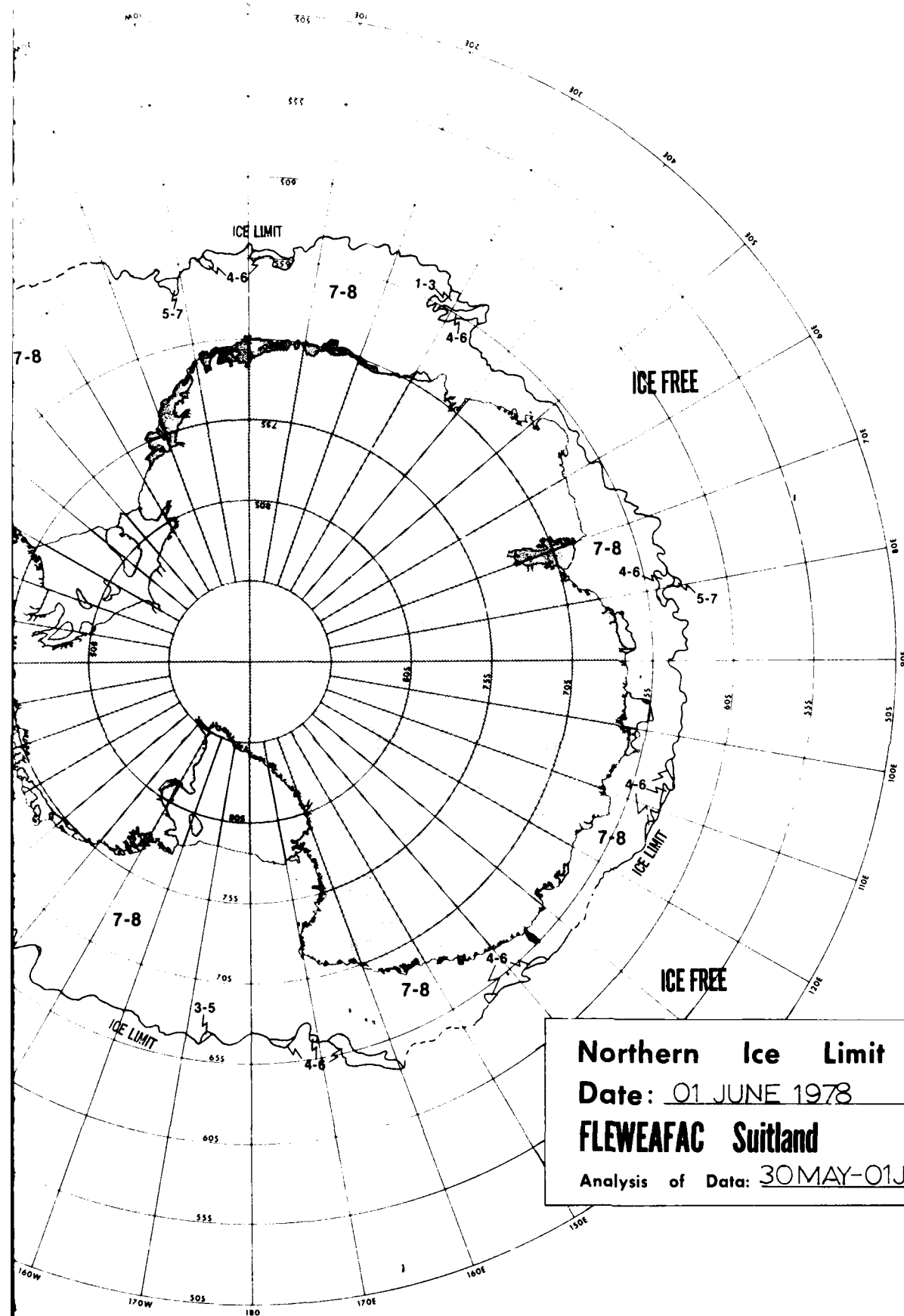
**FLEWEAFAC Suitland**

**Analysis of Data: 15-17 MAY 1978**









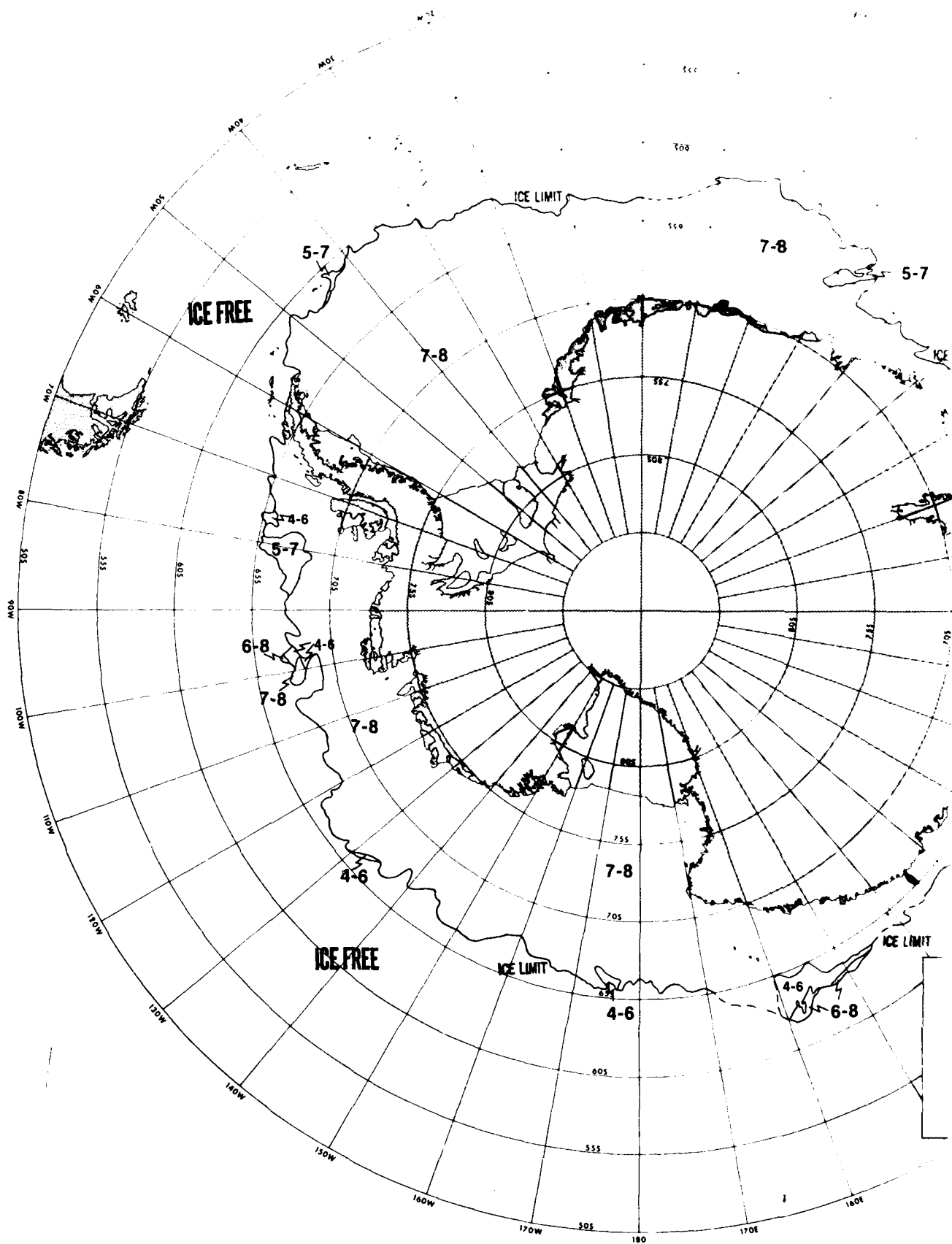
**Northern Ice Limit**

**Date:** 01 JUNE 1978

**FLEWEAFAC Suitland**

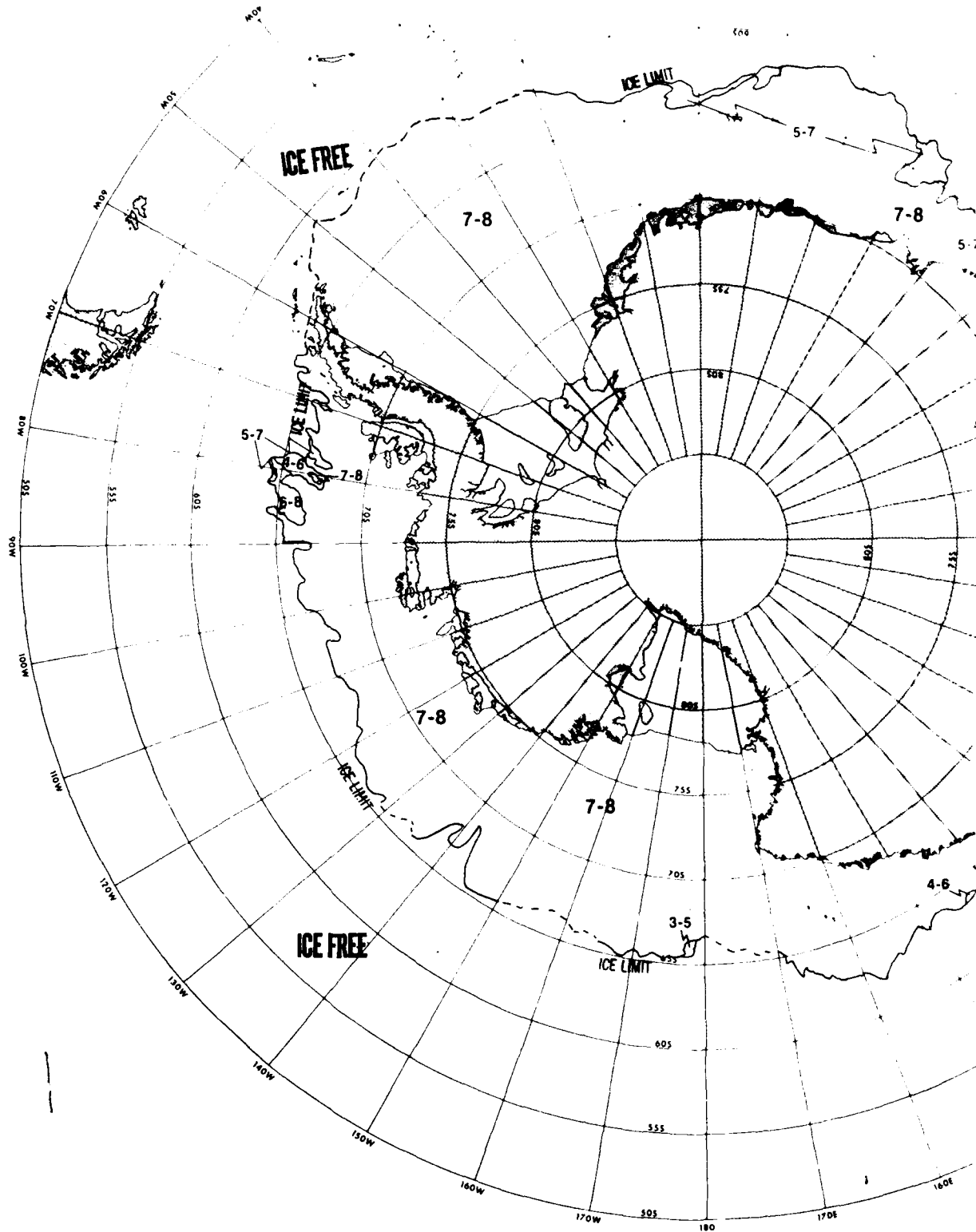
**Analysis of Data:** 30 MAY-01 JUN '78

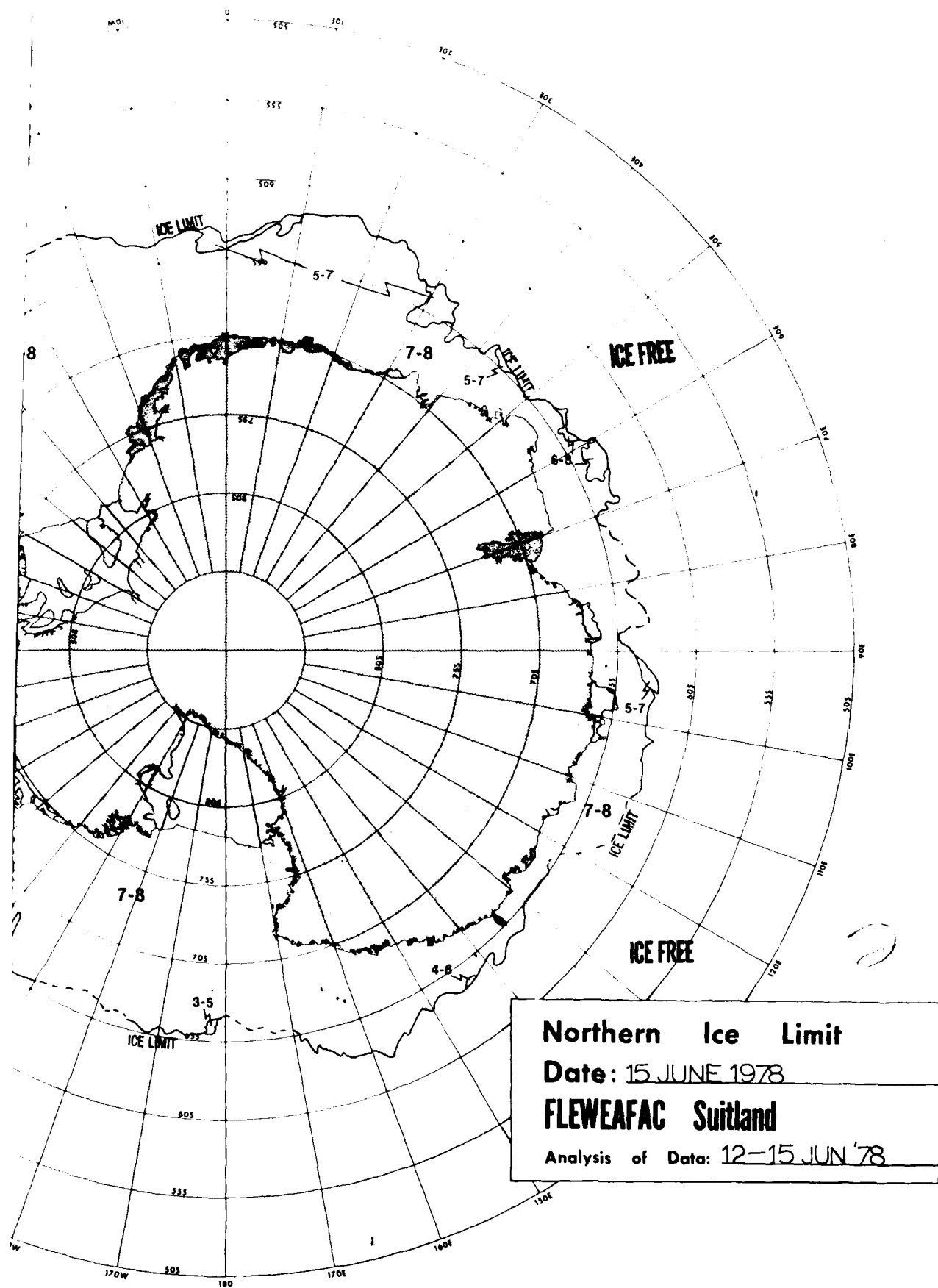
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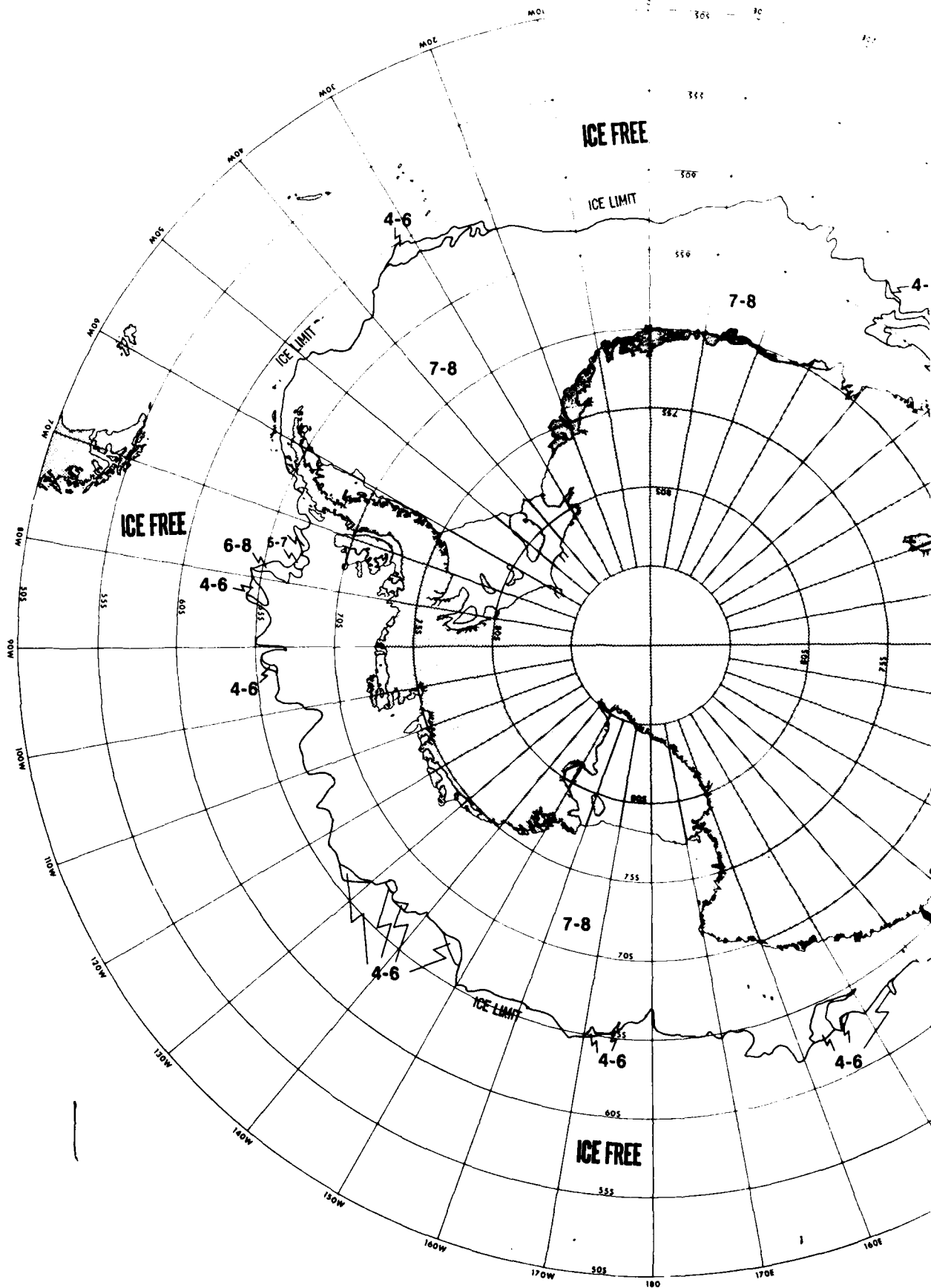


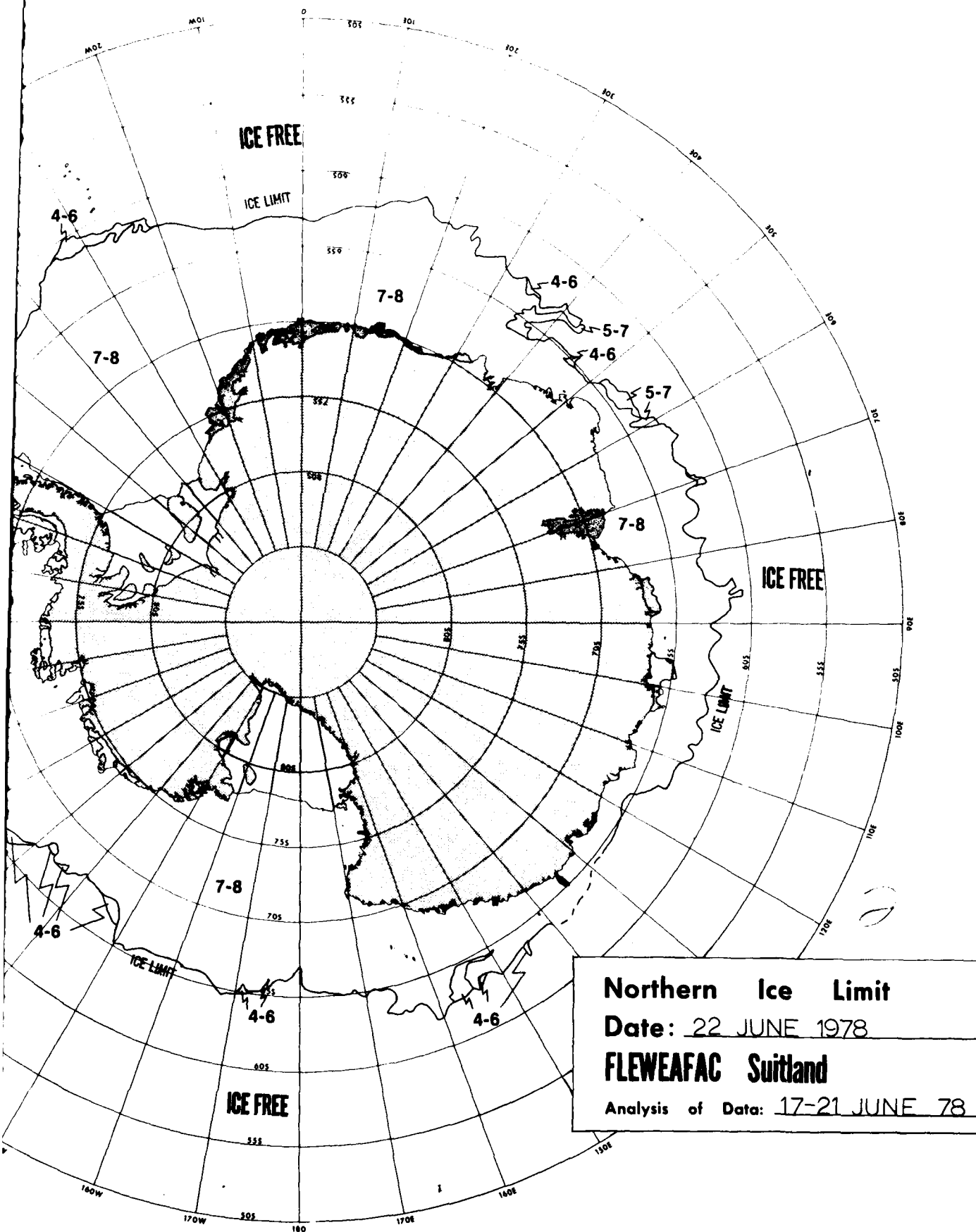


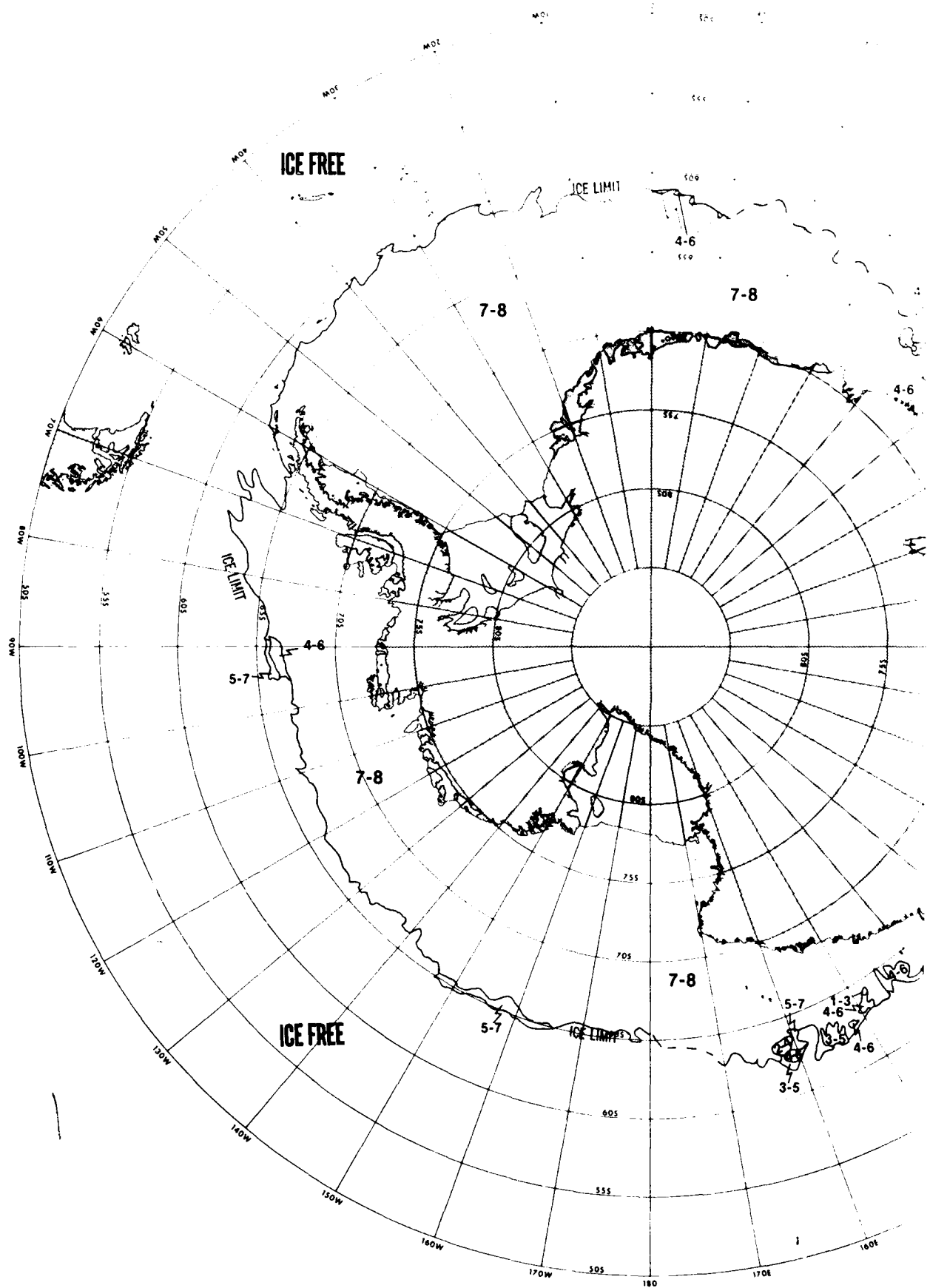


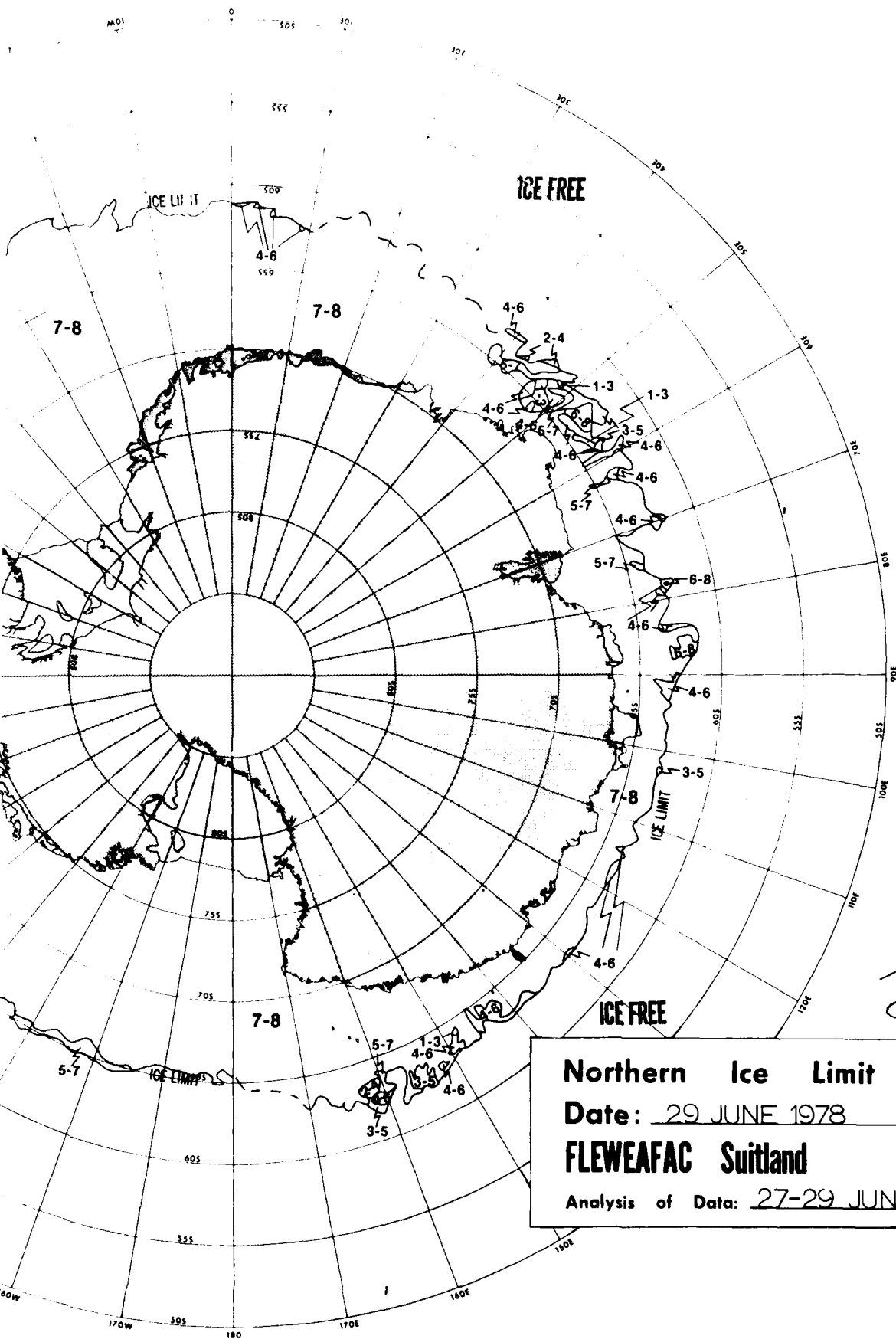


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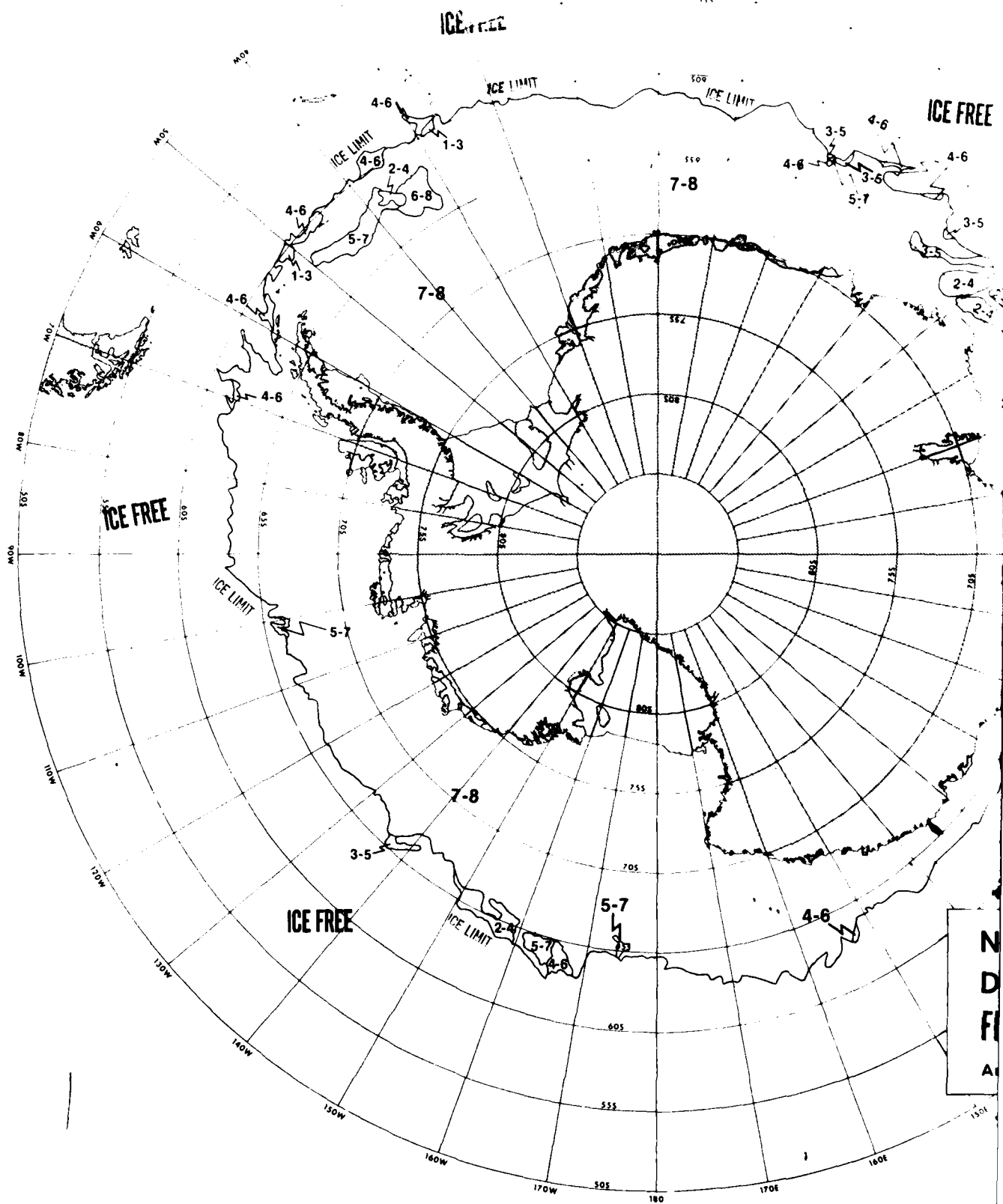


**Northern Ice Limit**

**Date:** 29 JUNE 1978

**FLEWEAFAC Suitland**

**Analysis of Data:** 27-29 JUN 78



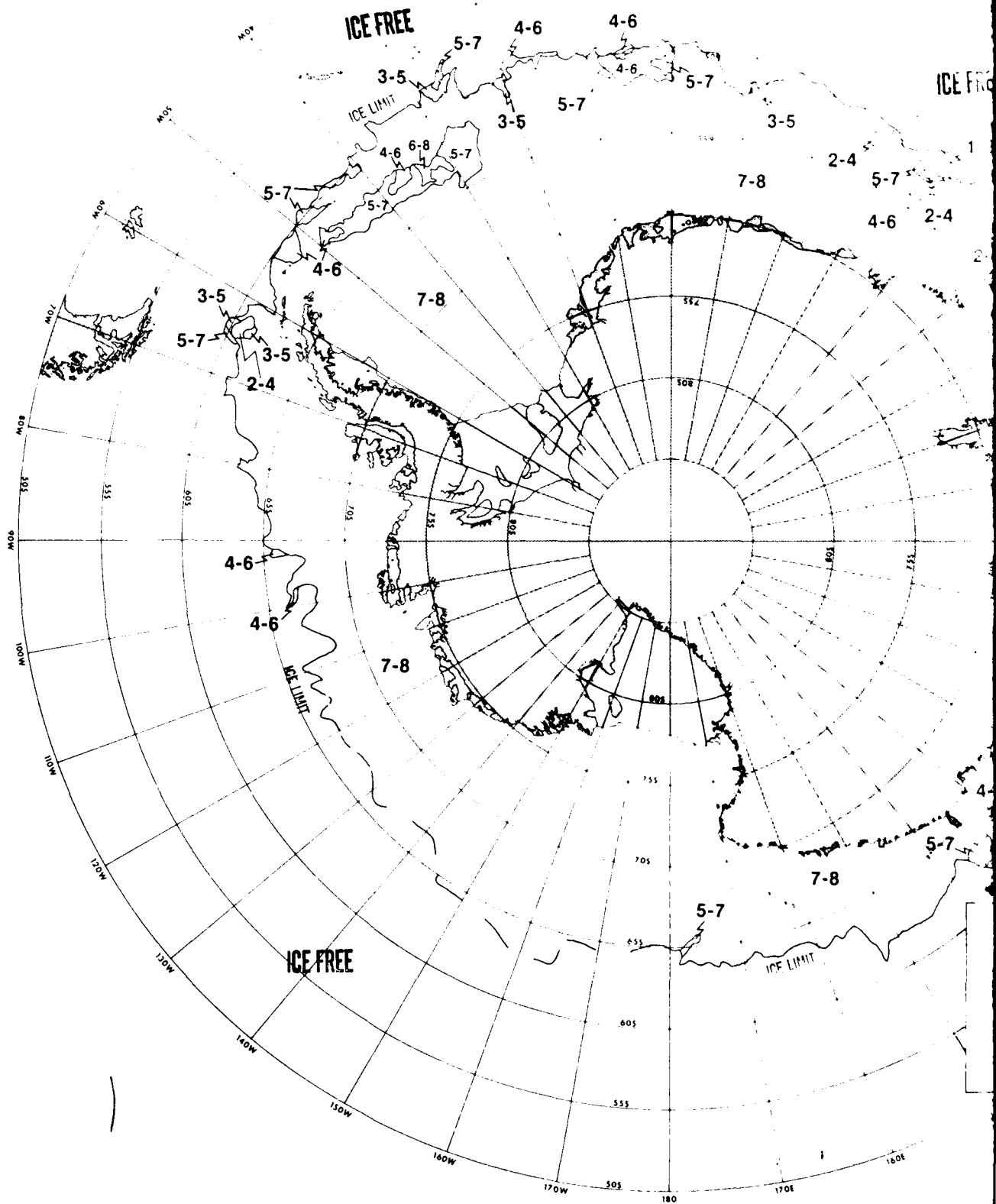
**Northern Ice Limit**  
**Date:** 06 JULY 1978  
**FLEWEAFAC Suitland**  
**Analysis of Data:** 03-05 JULY 78

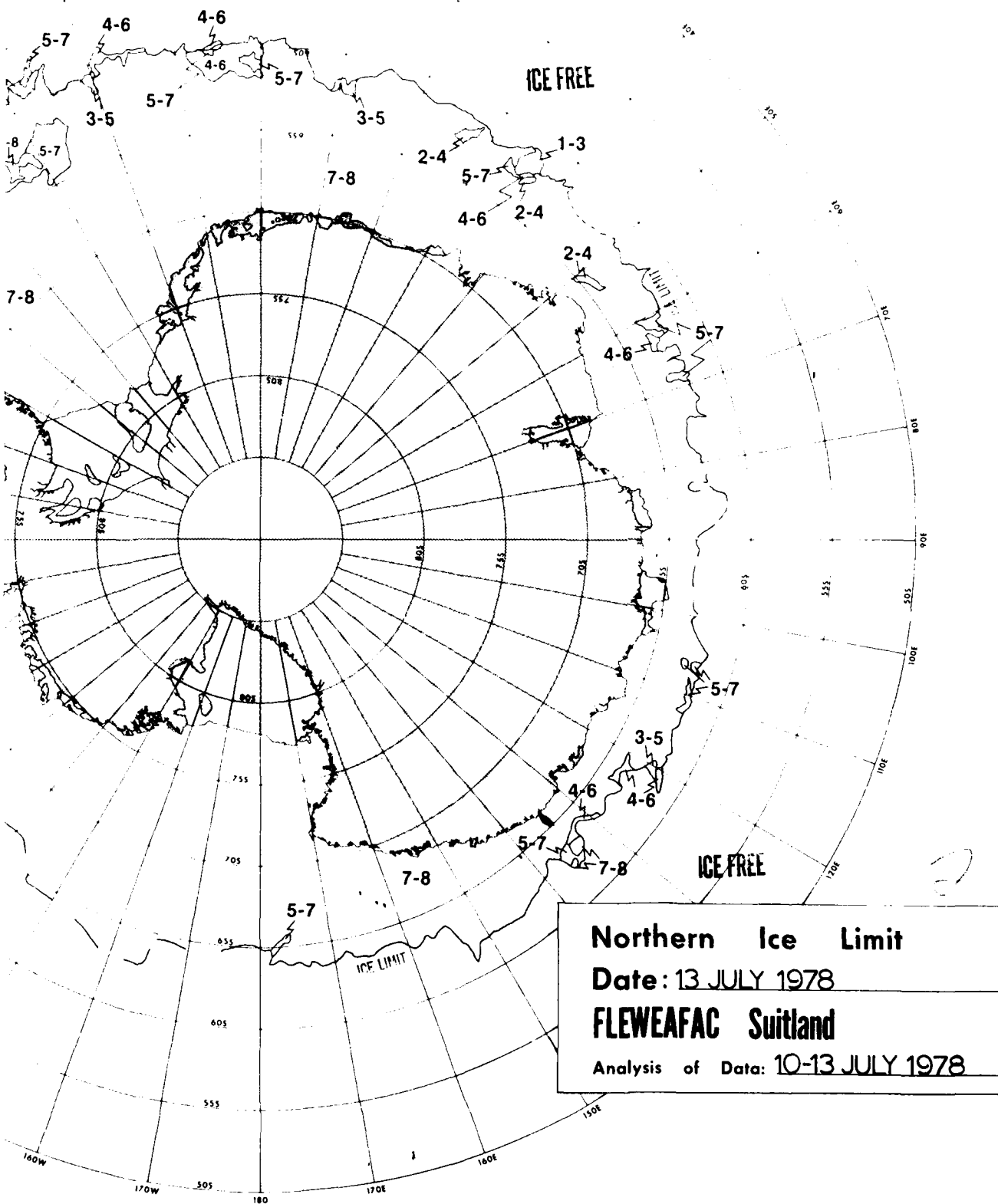
**Date:** 06 JULY 1978

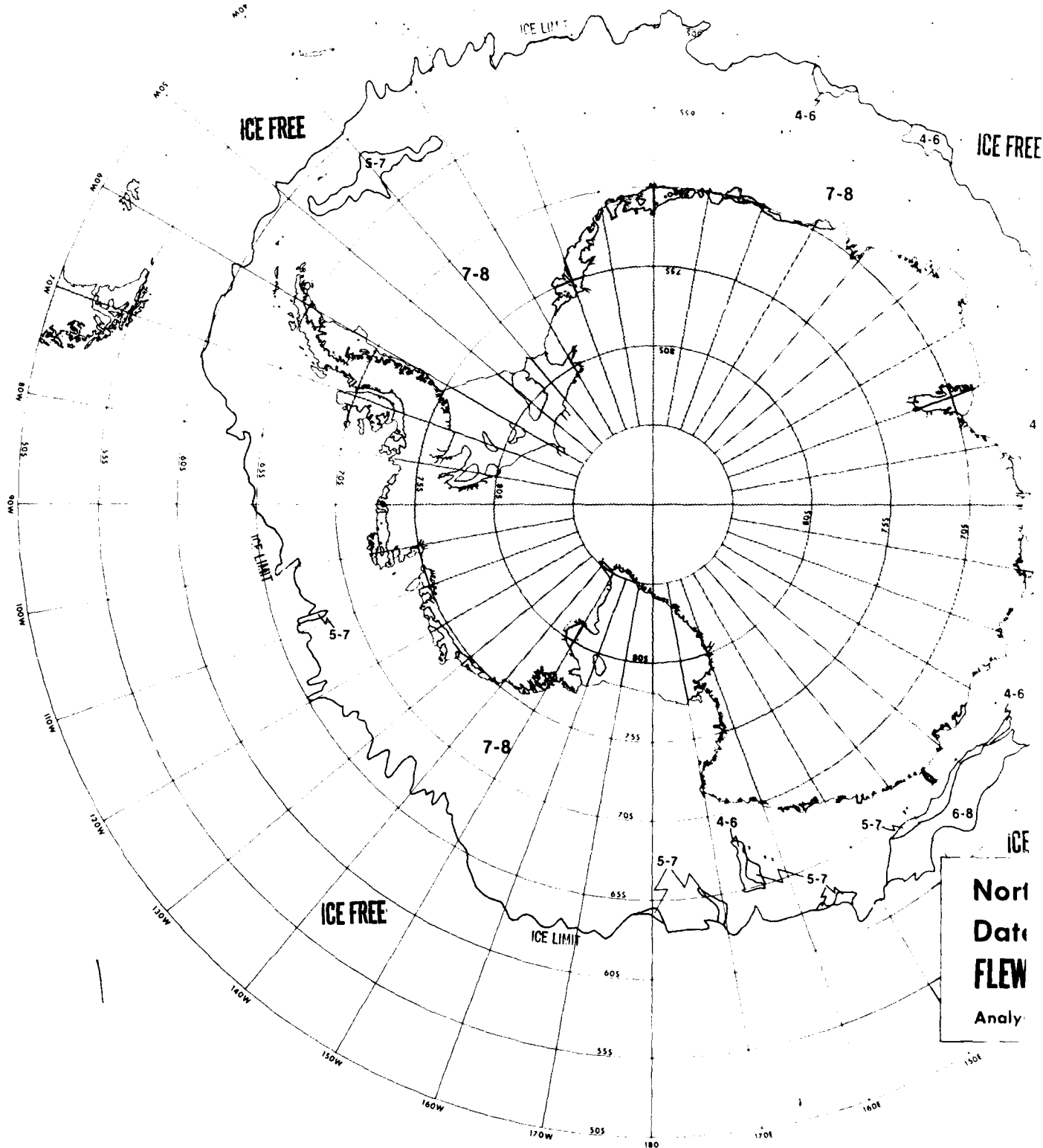
**FLEWEAFAC**   **Suitland**

Analysis of Data: 03-05 JULY 78

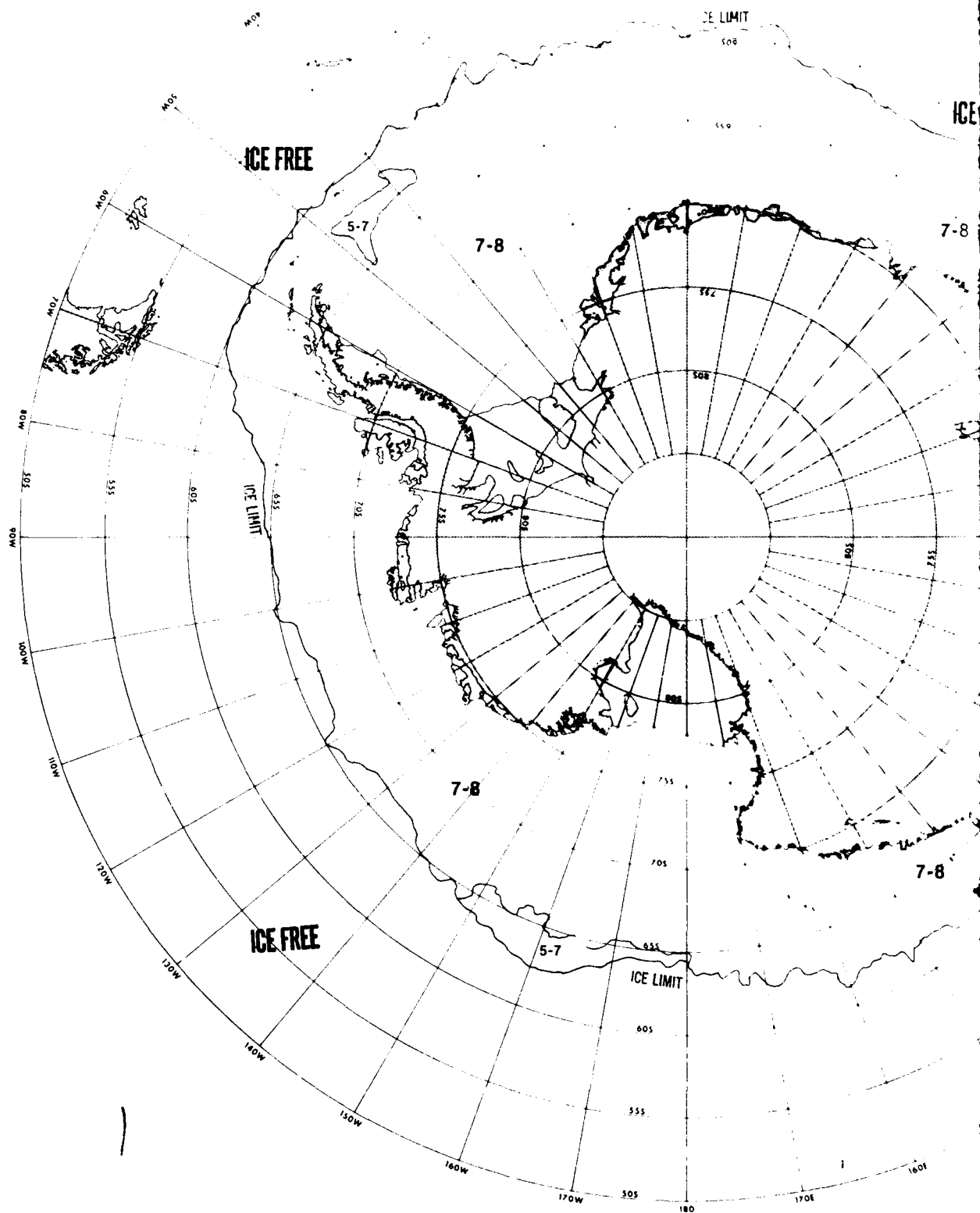


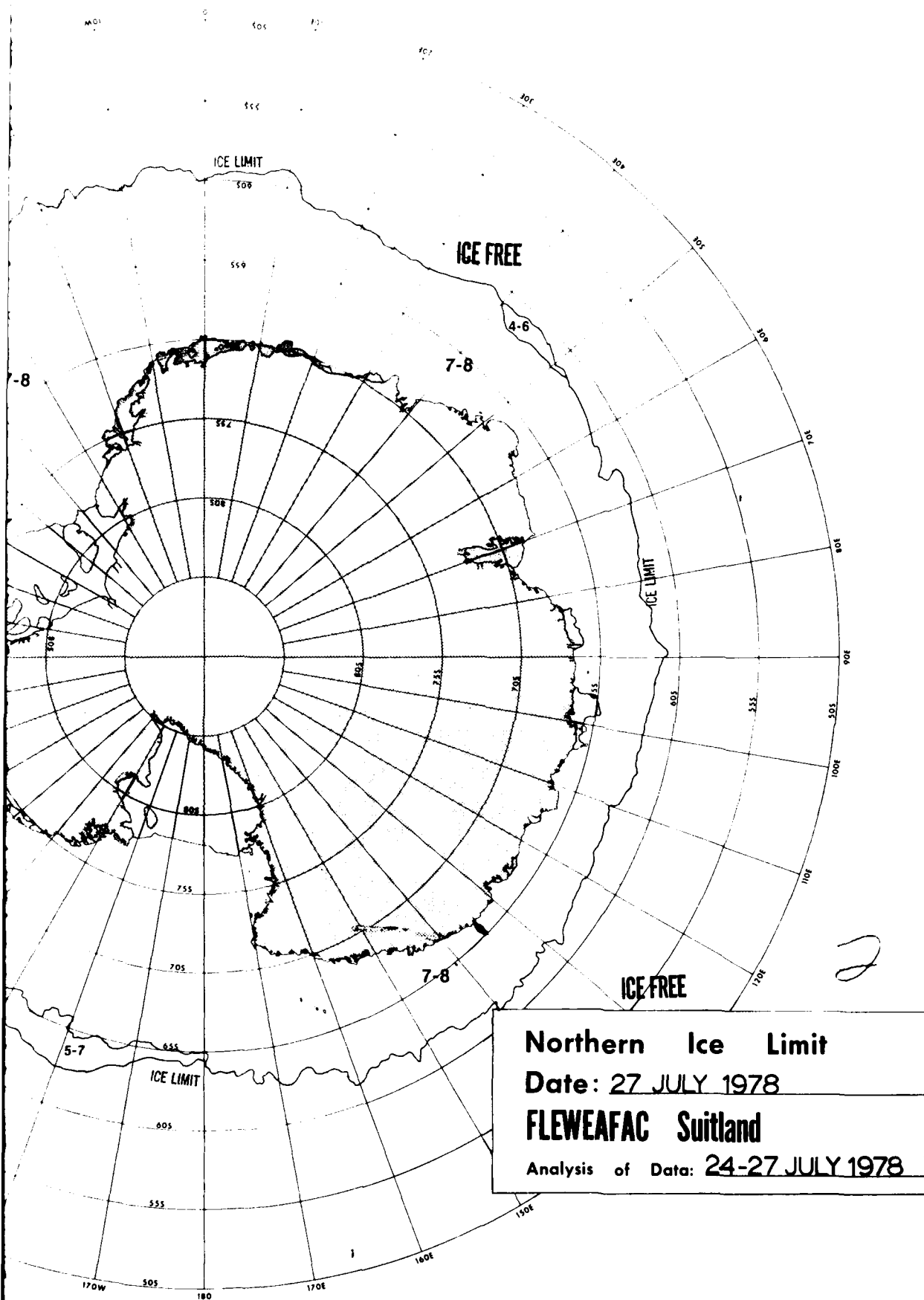


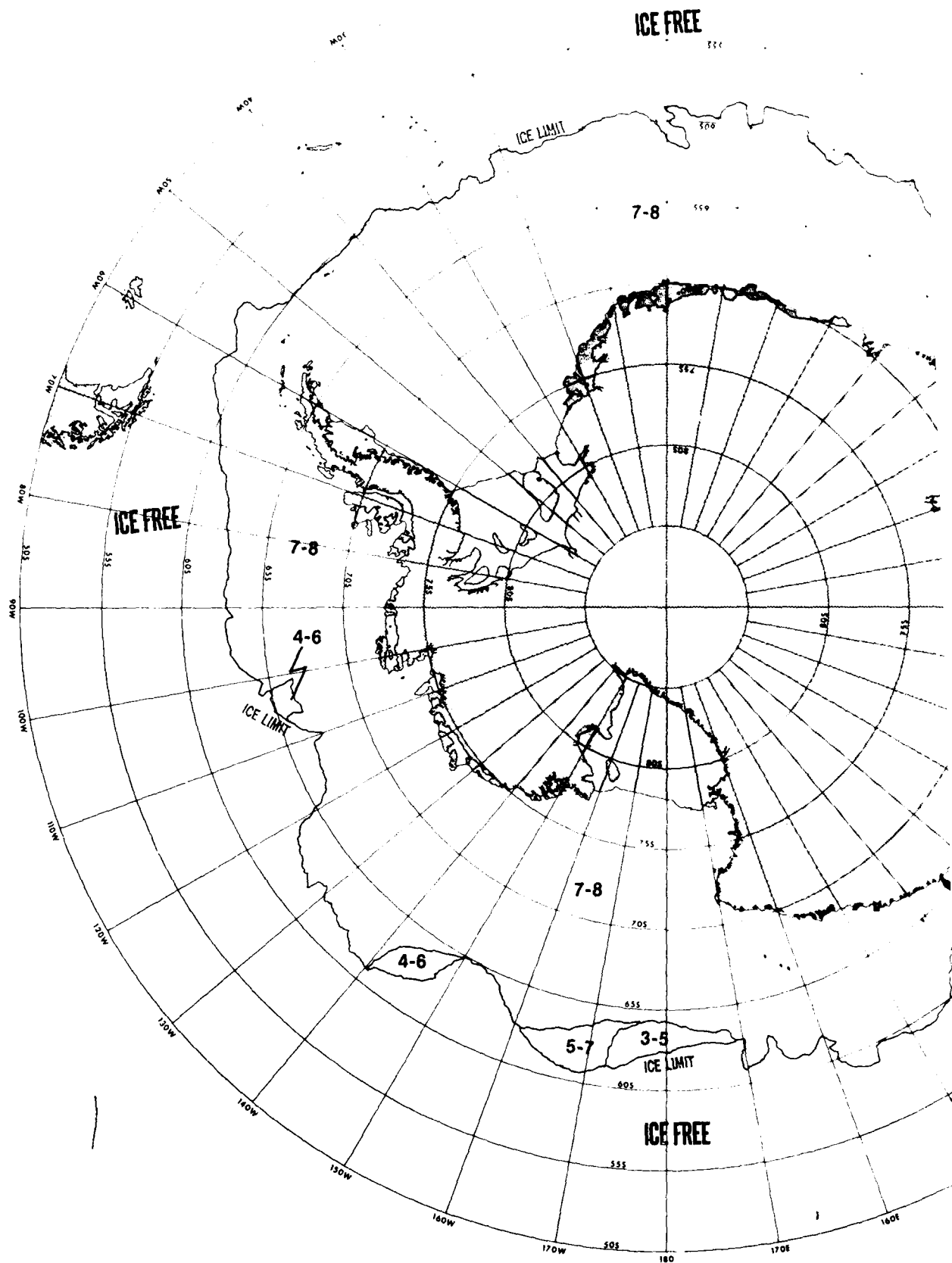


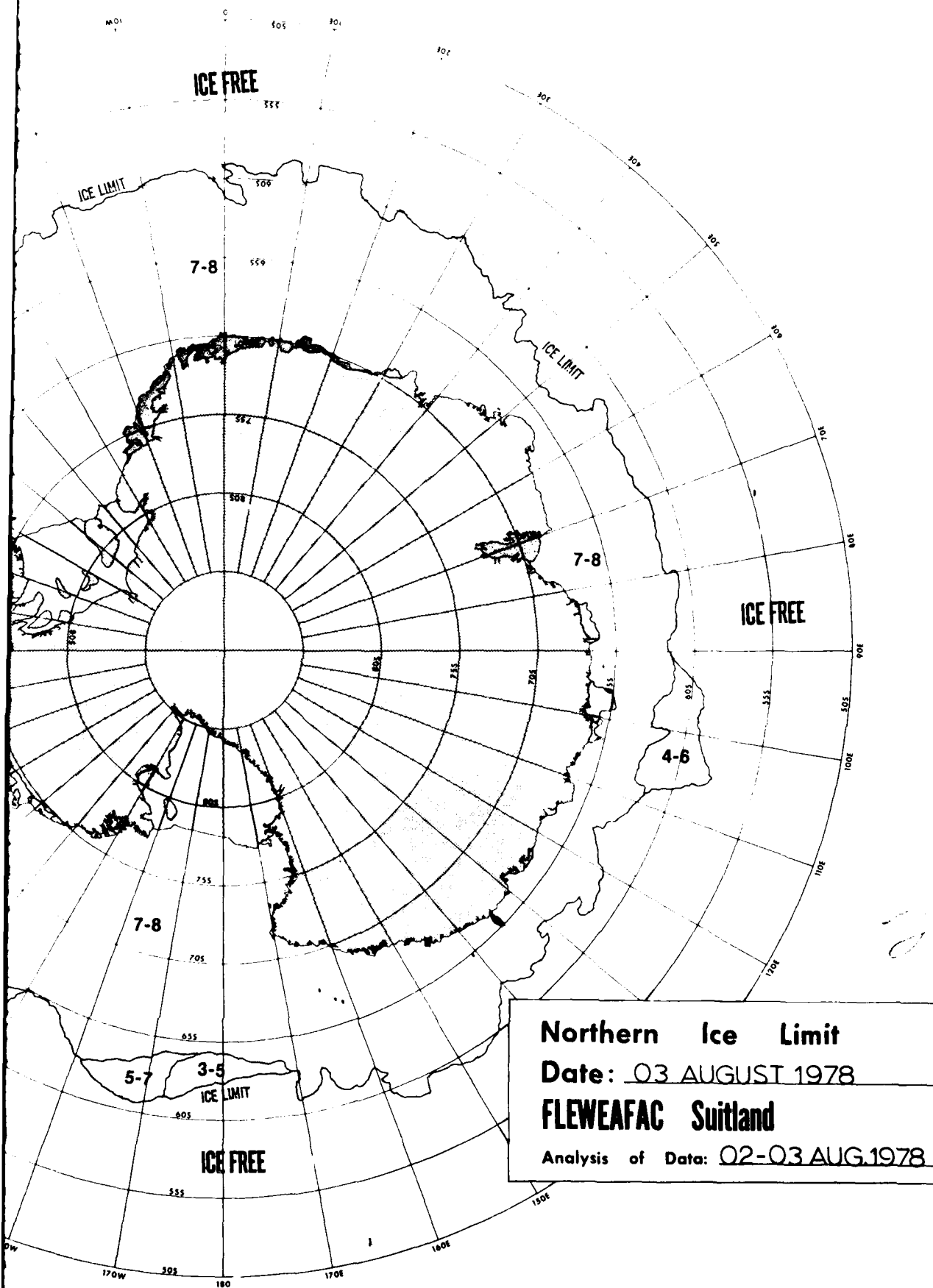




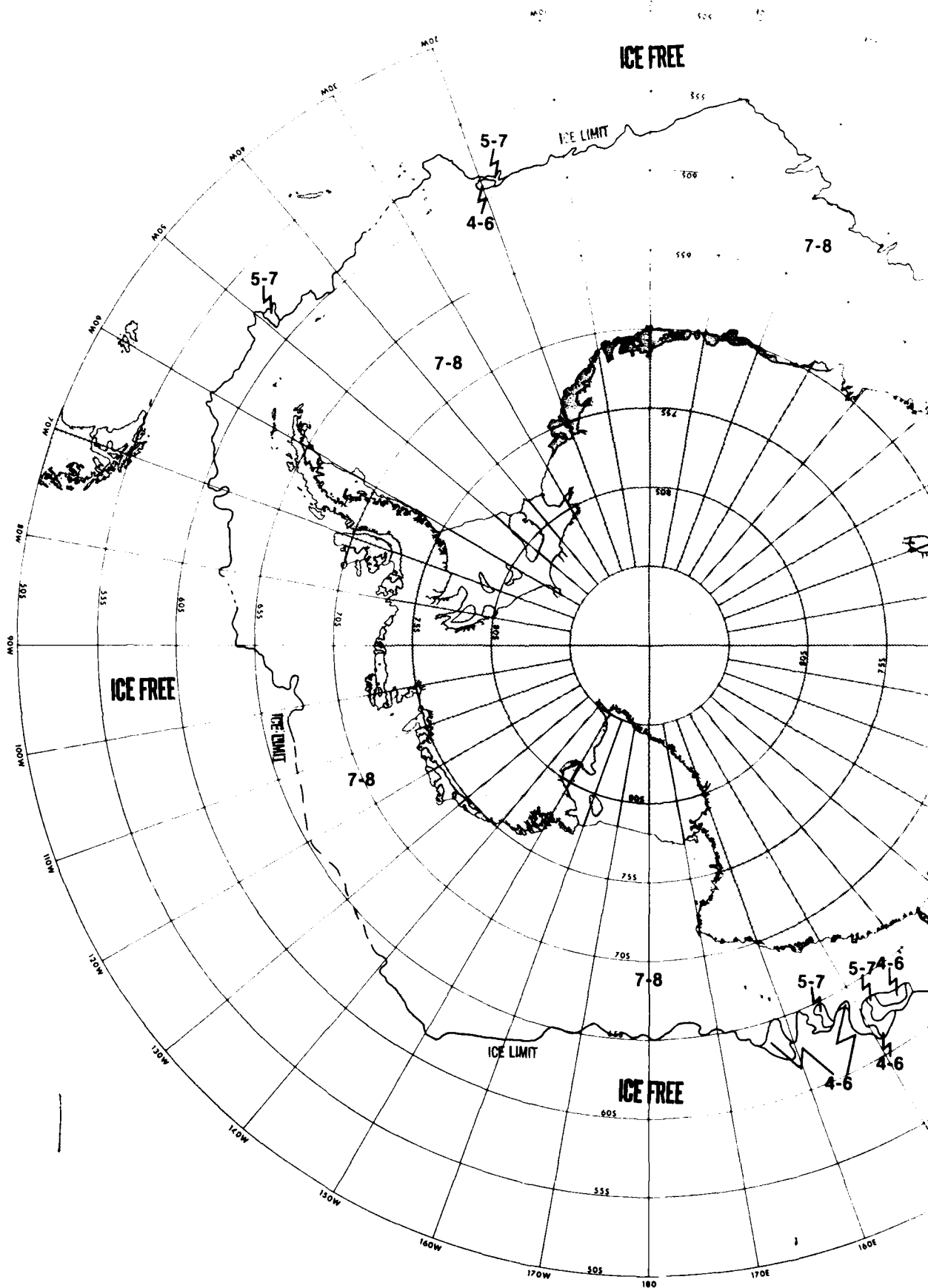


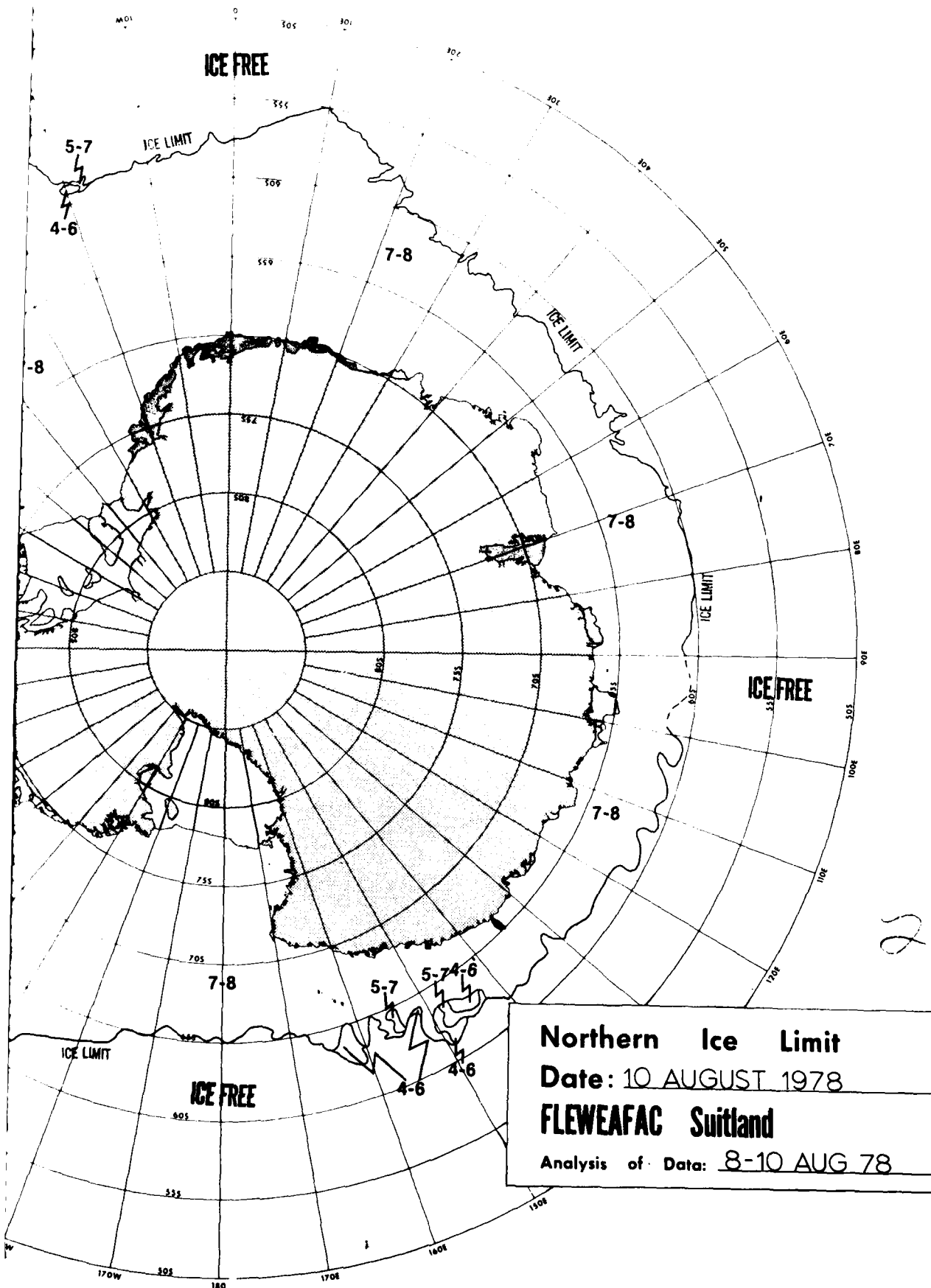


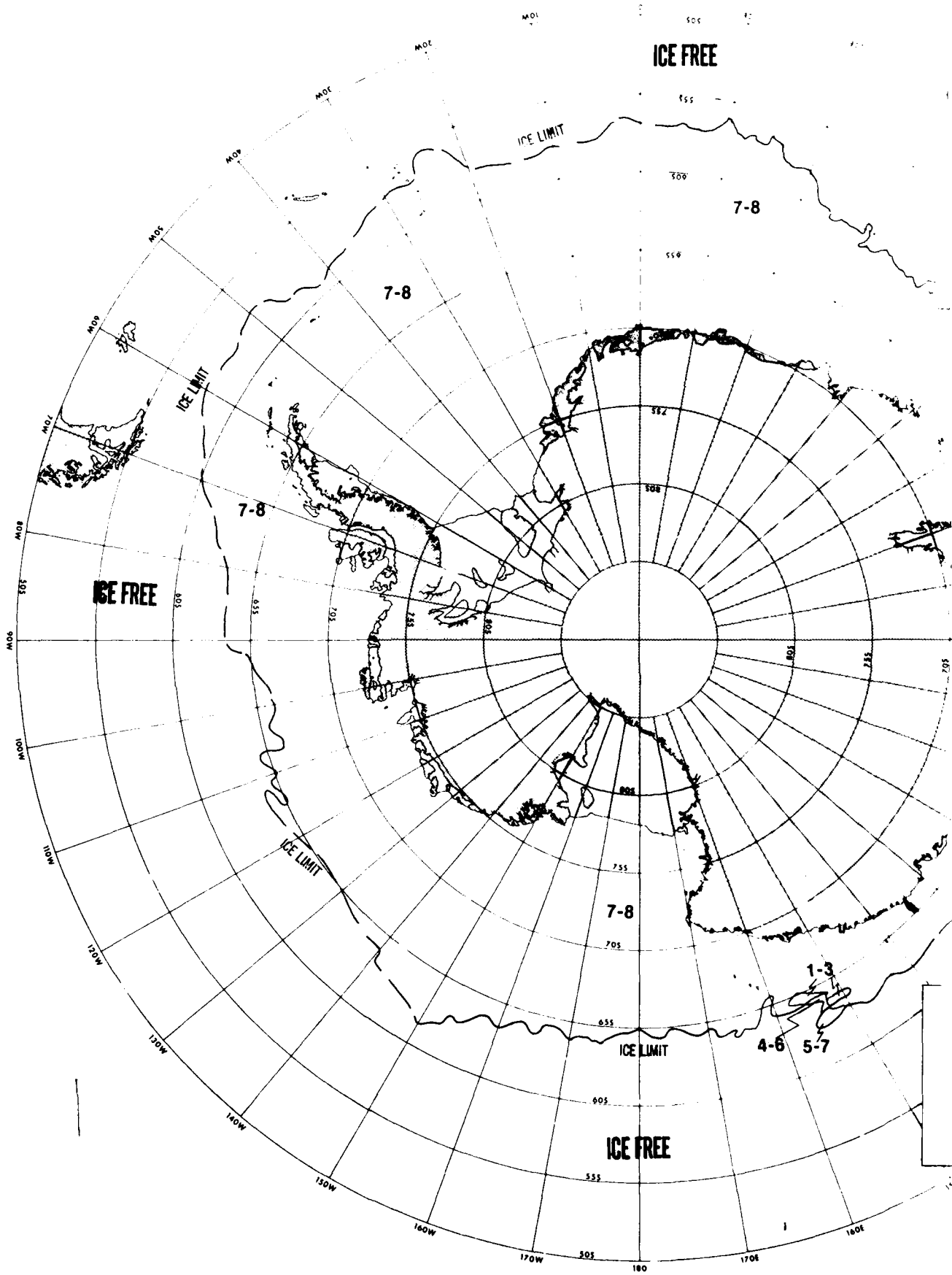


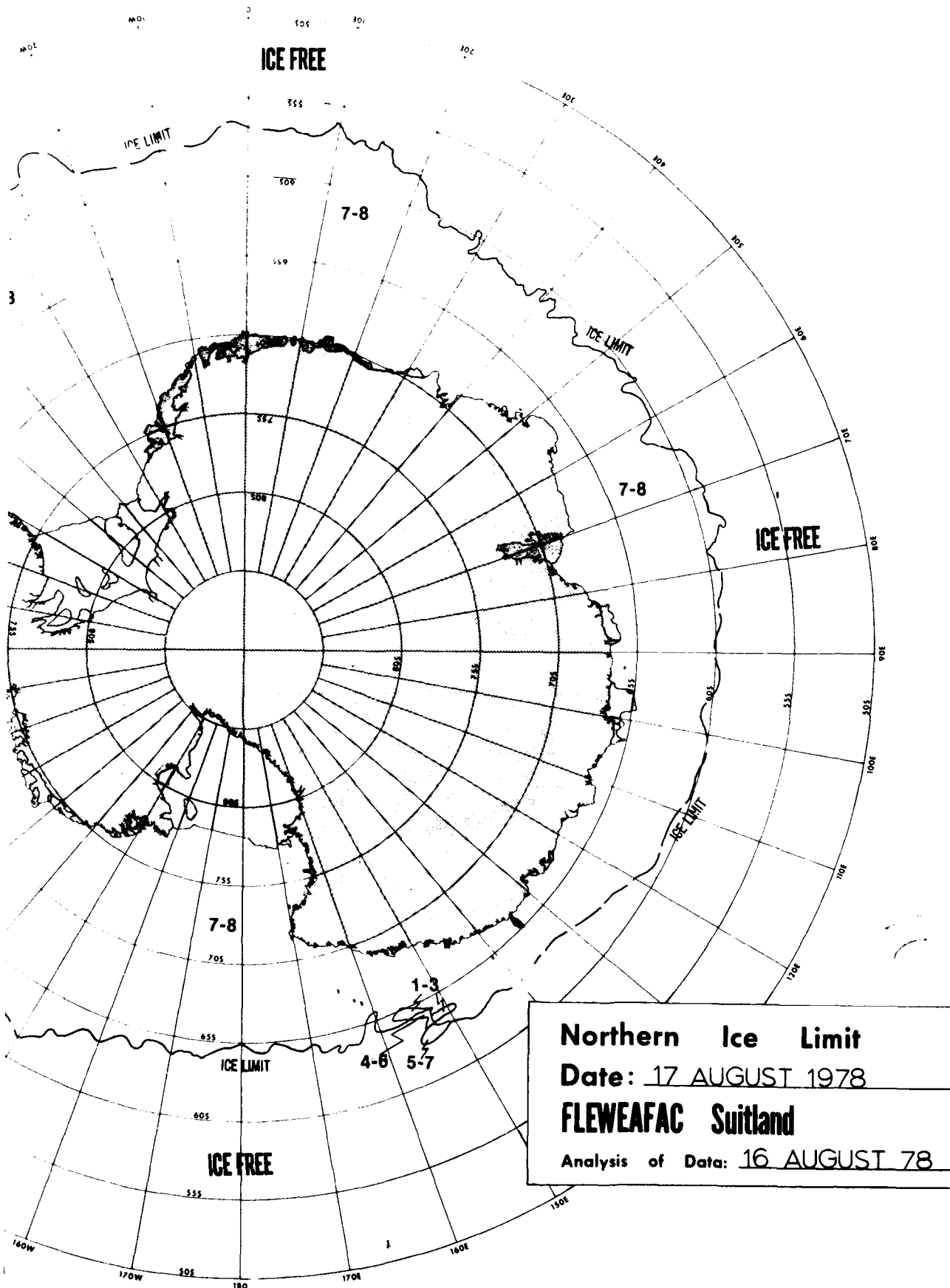




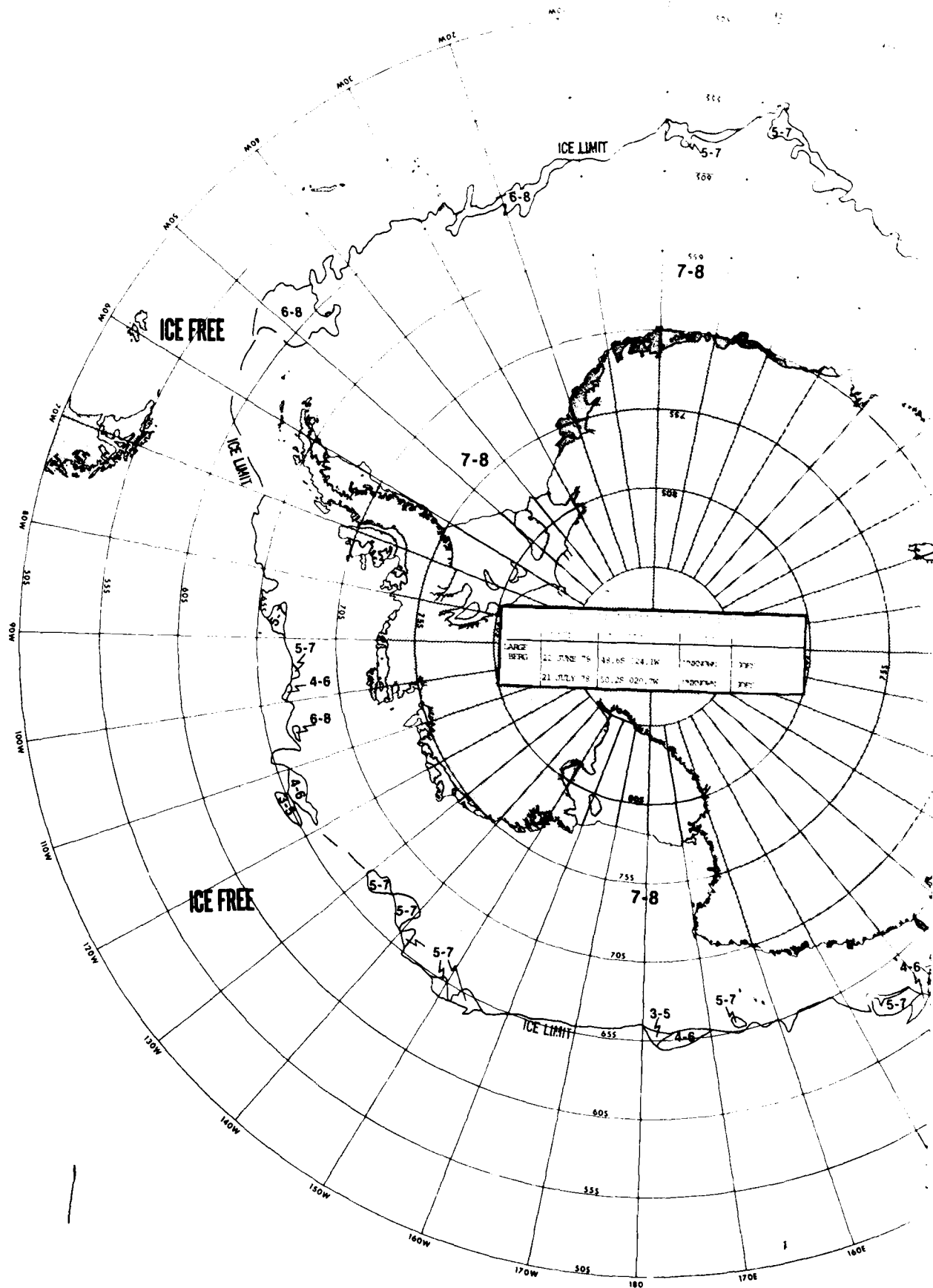


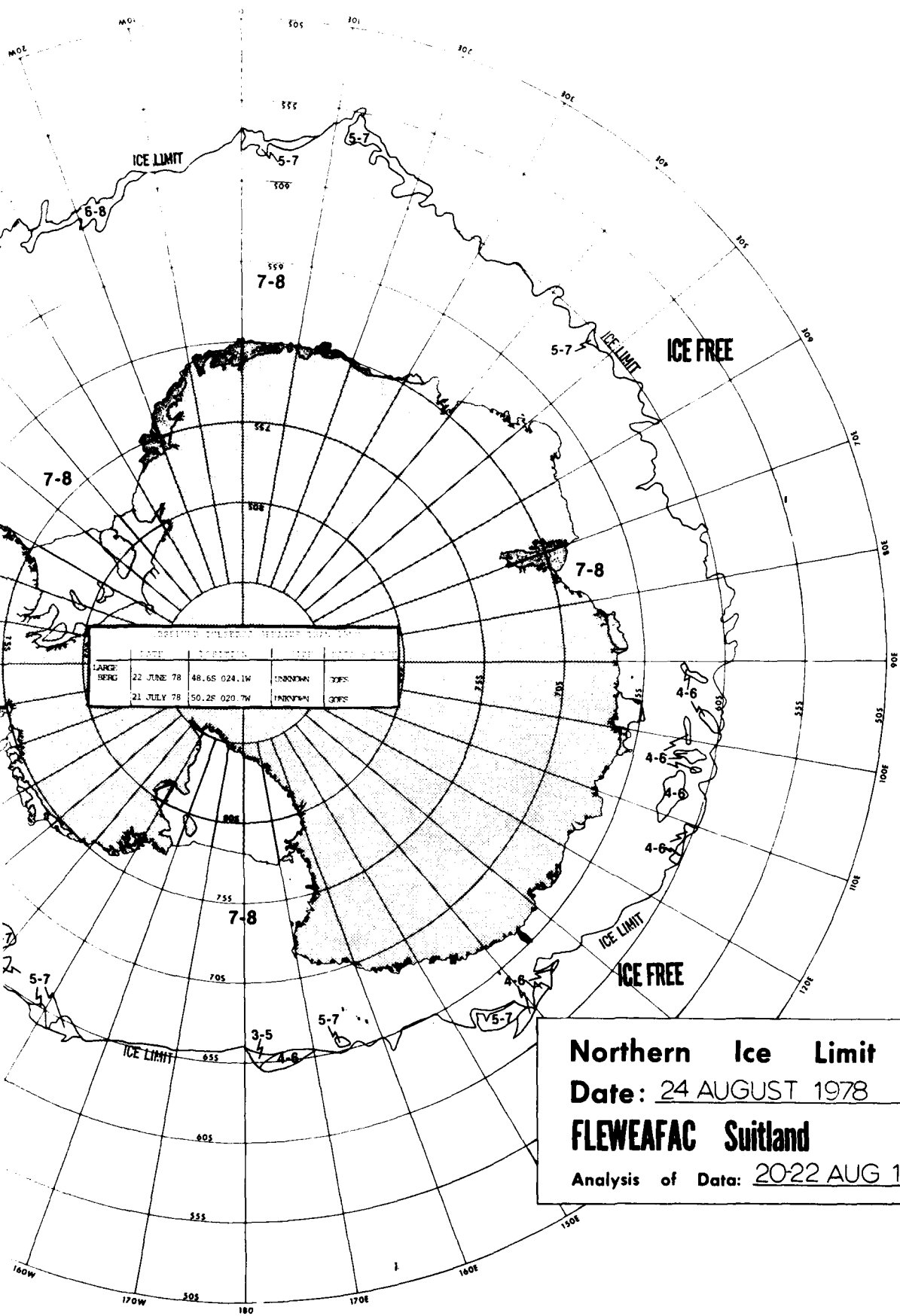






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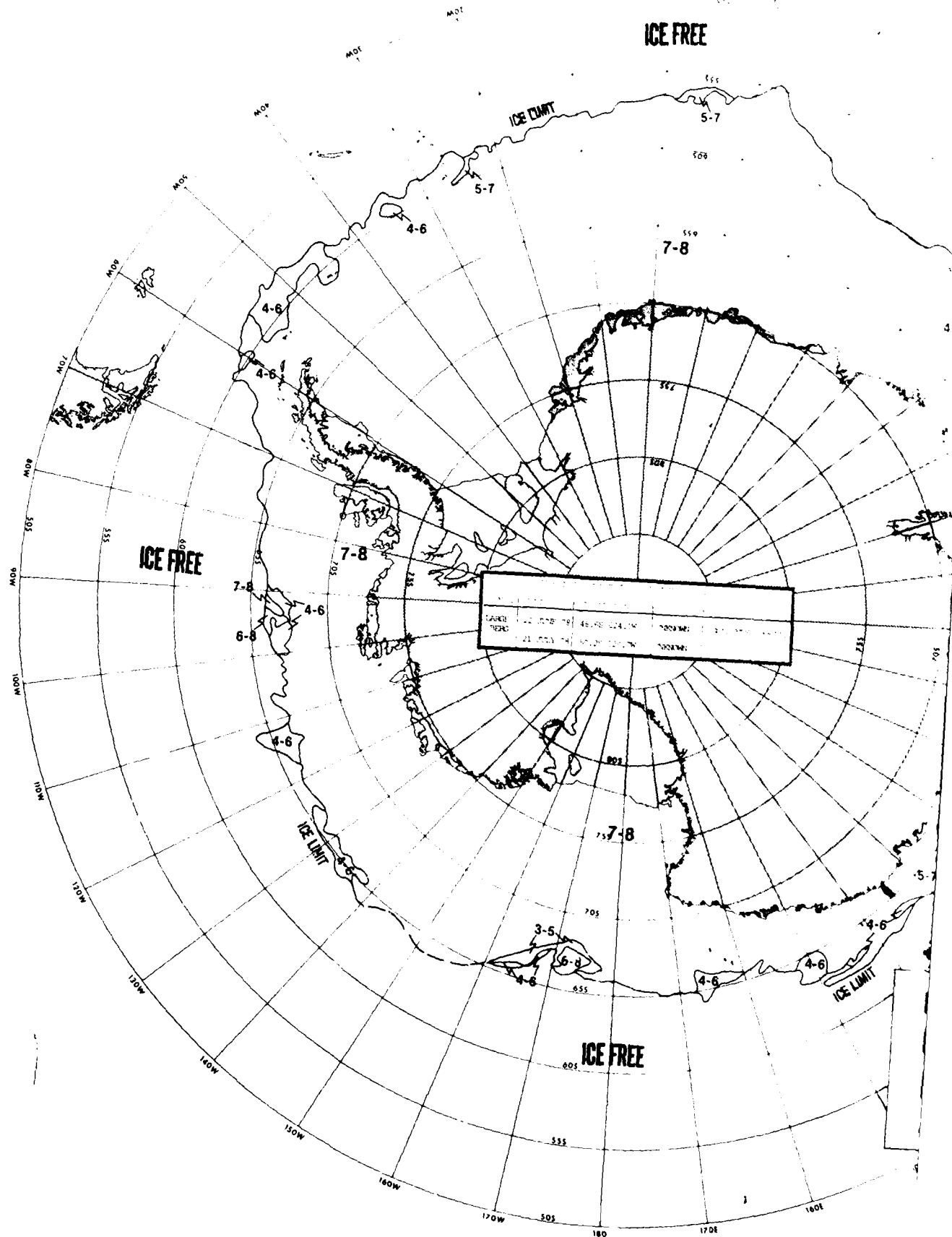


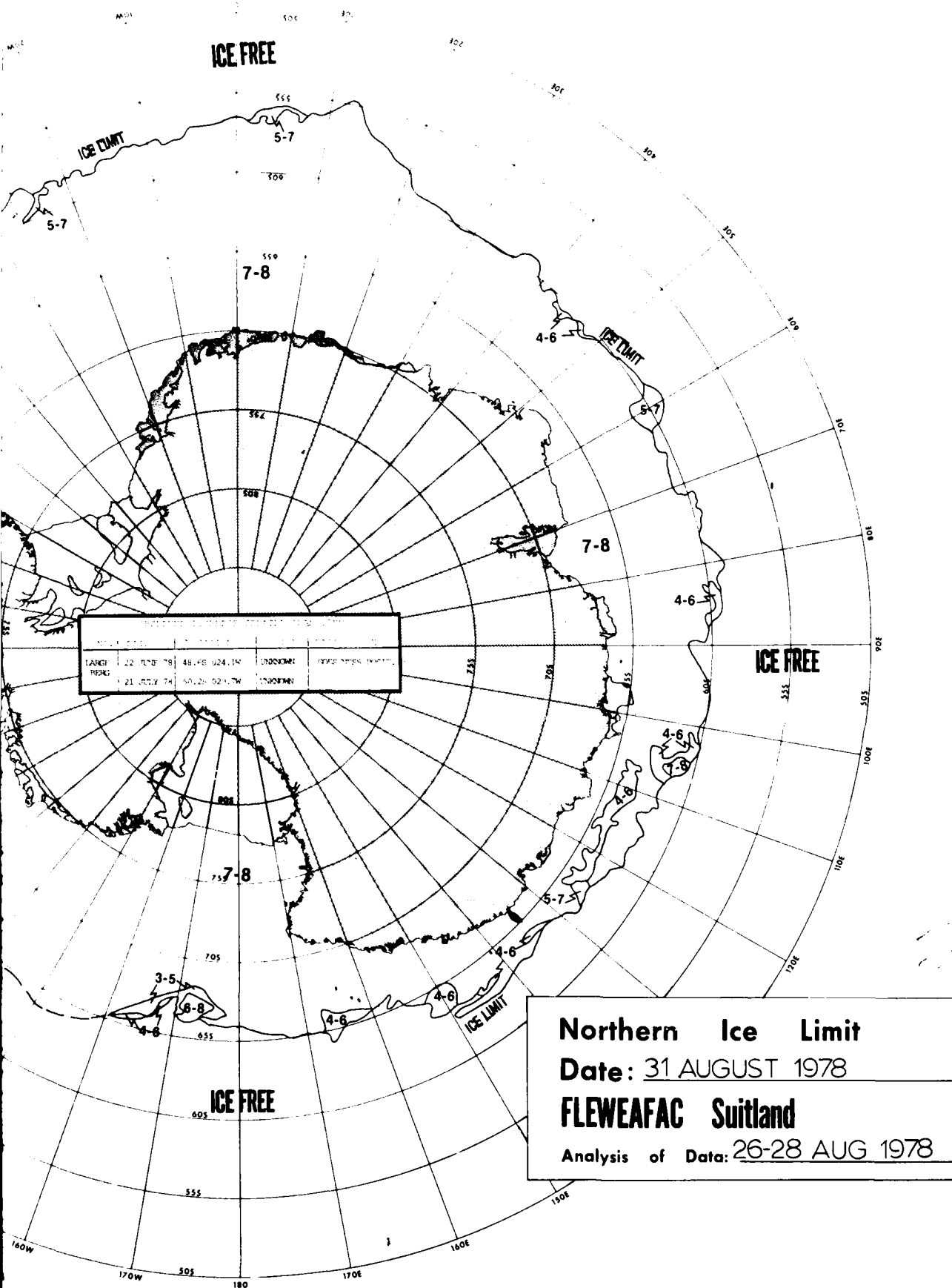
**Northern Ice Limit**

**Date:** 24 AUGUST 1978

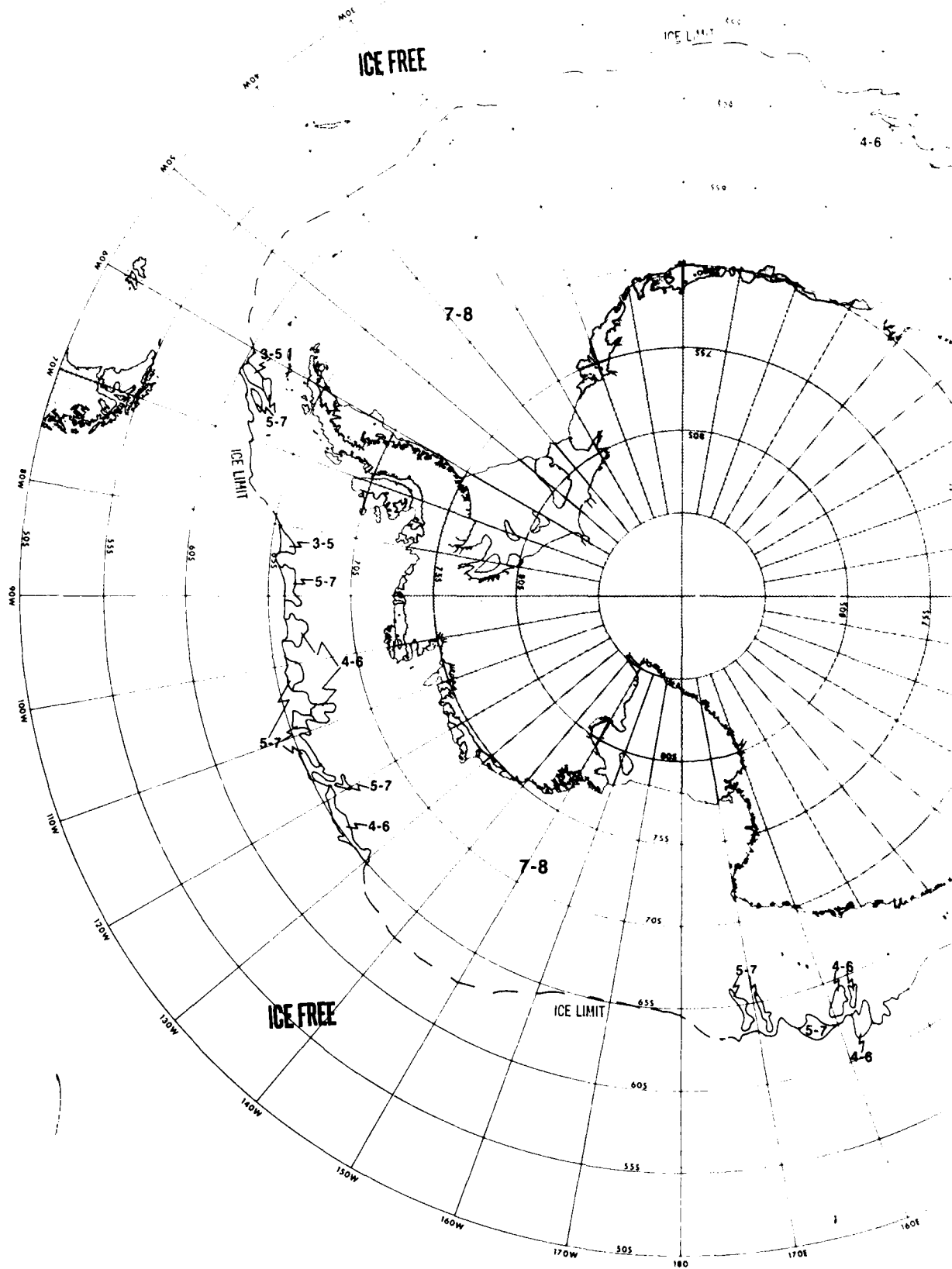
**FLEWEAFAC Suitland**

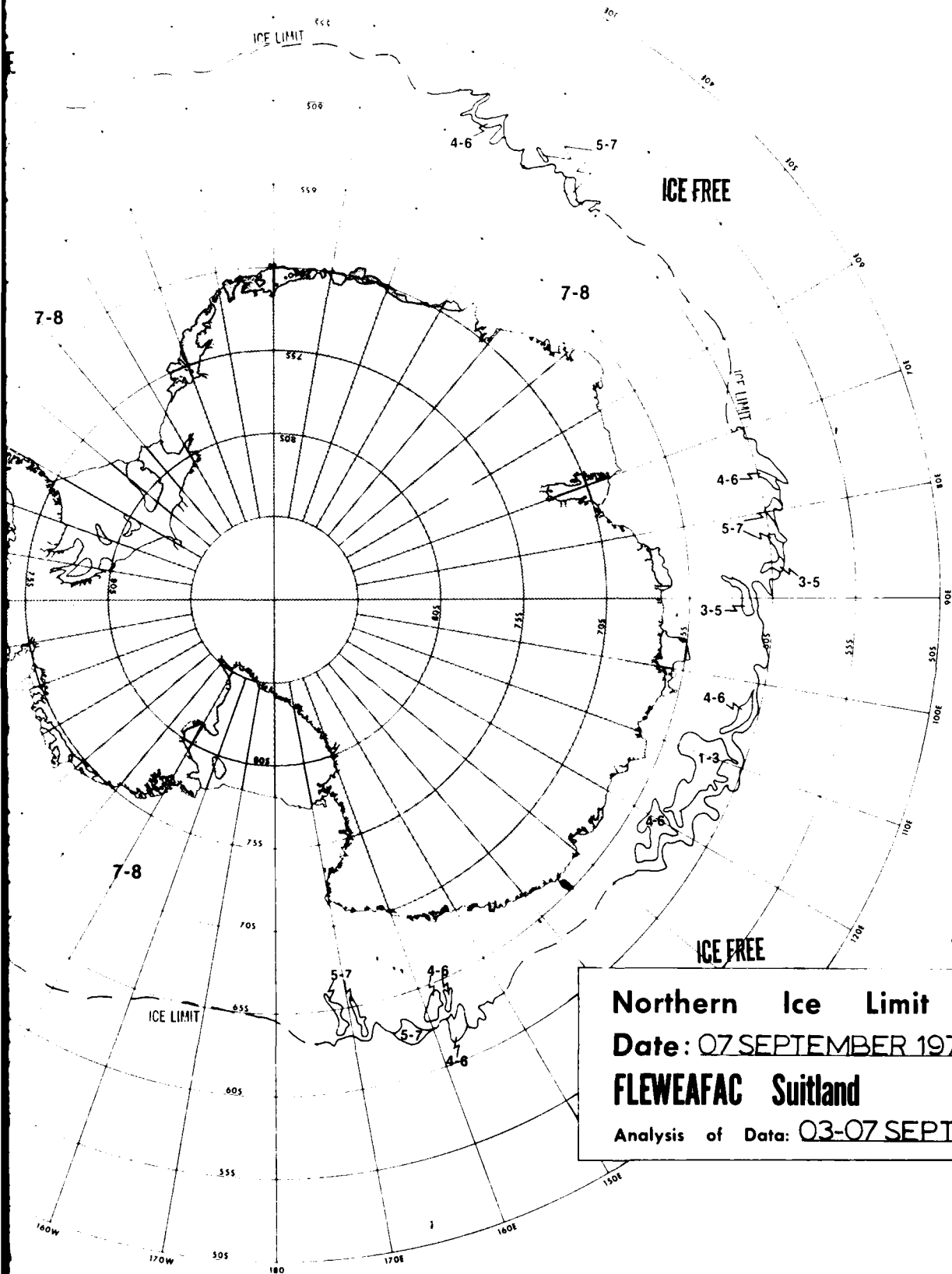
**Analysis of Data:** 2022 AUG 1978





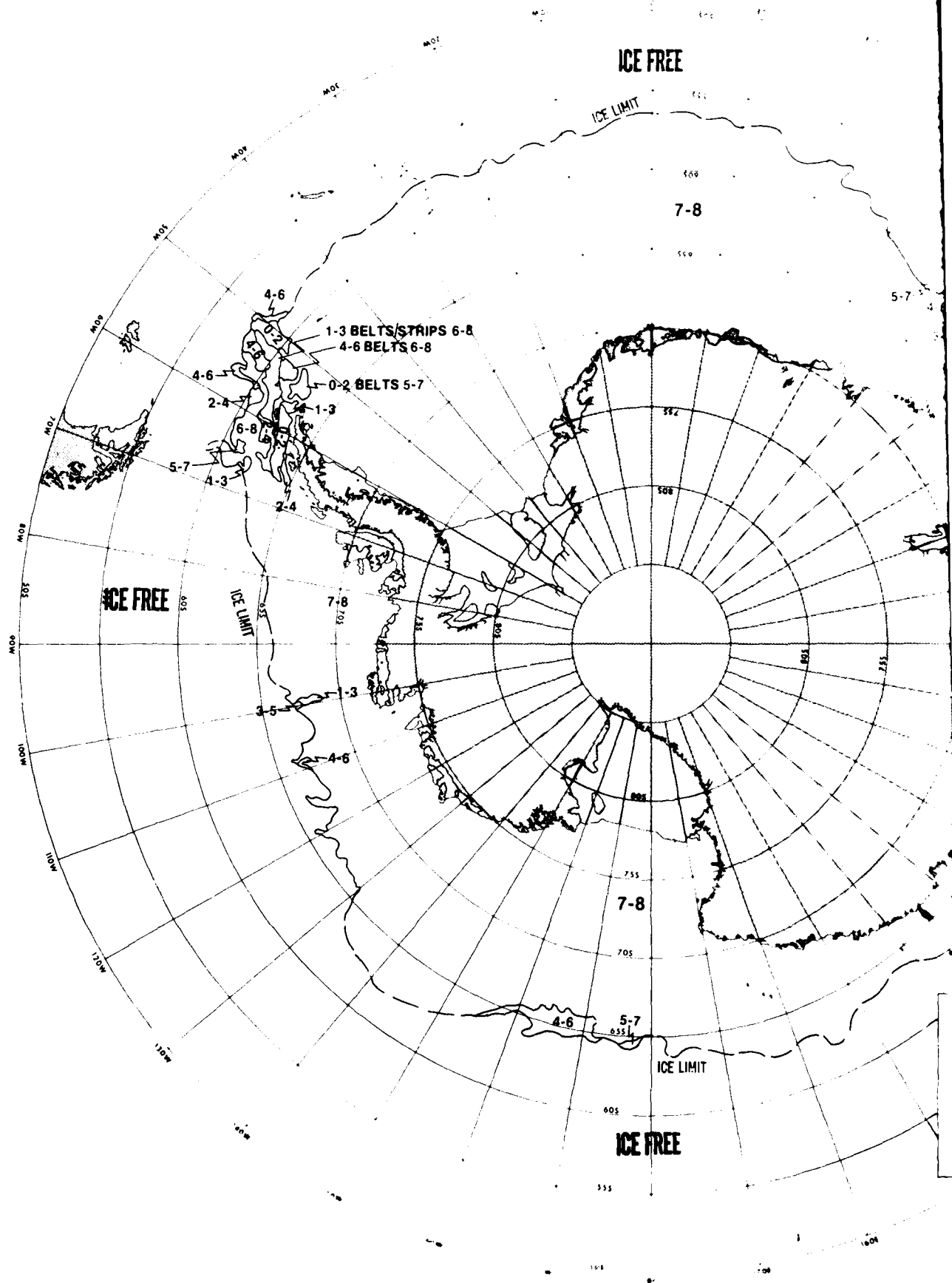


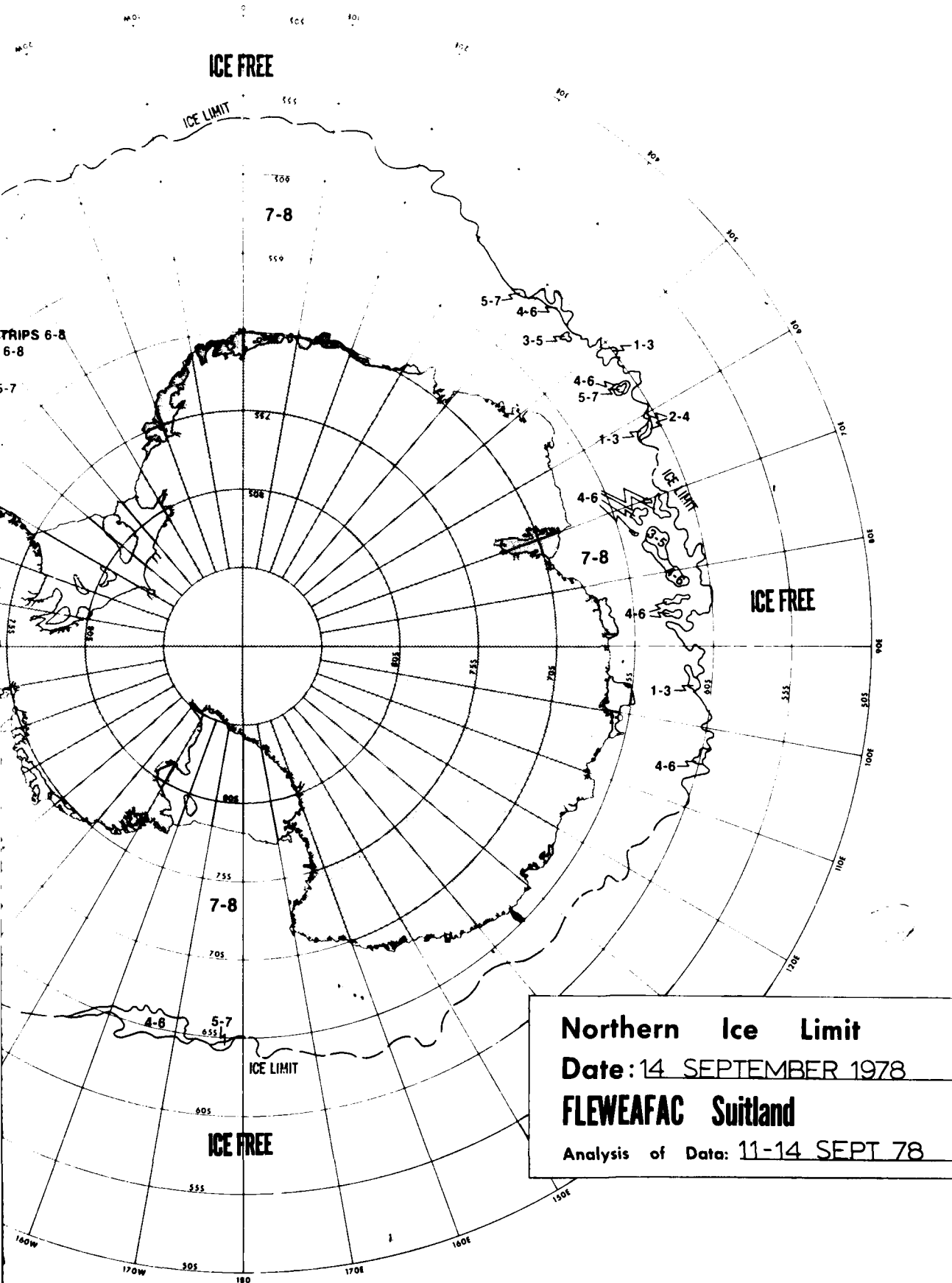


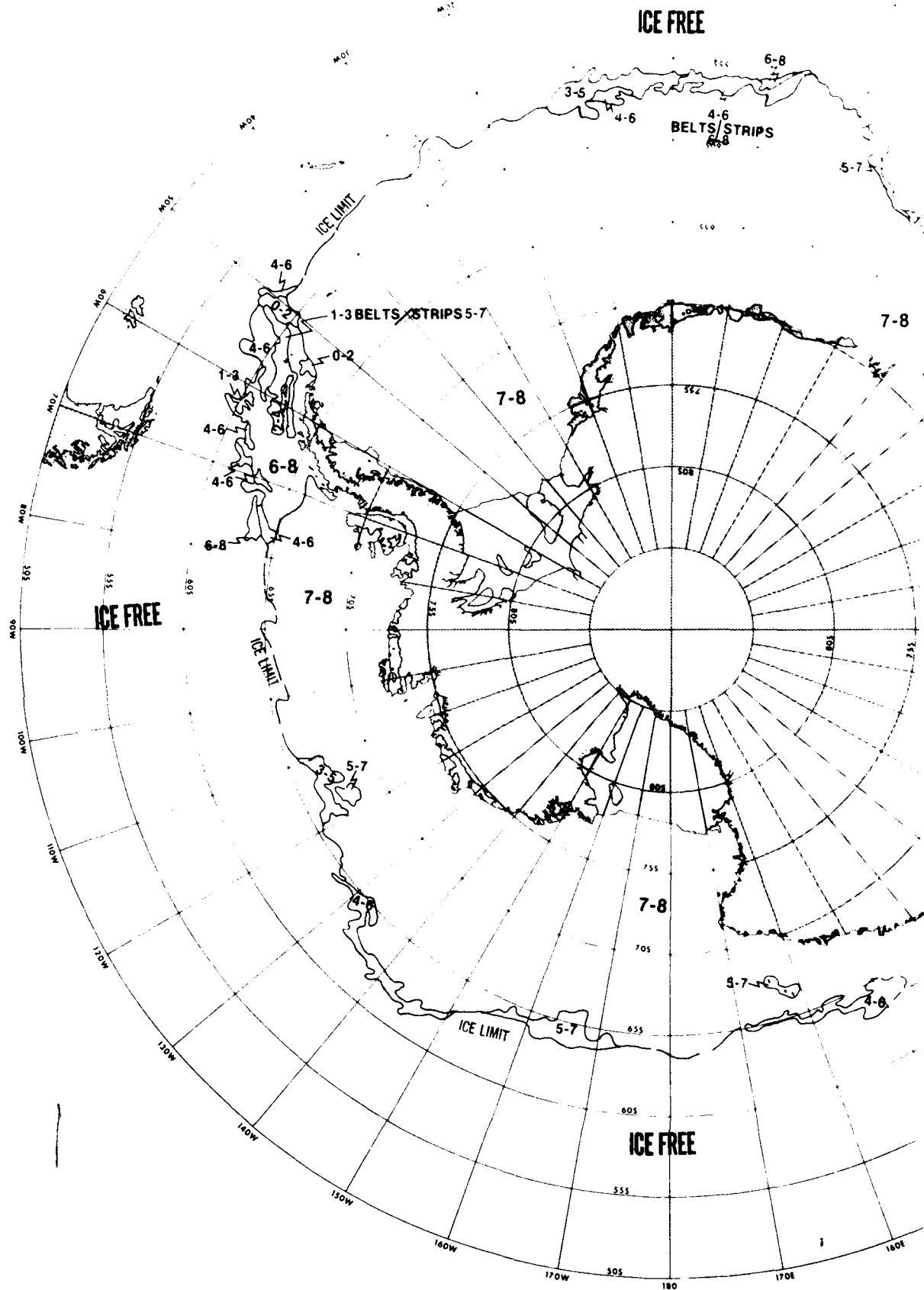


**Northern Ice Limit**  
**Date: 07 SEPTEMBER 1978**  
**FLEWEAFAC Suitland**  
**Analysis of Data: 03-07 SEPT 1978**

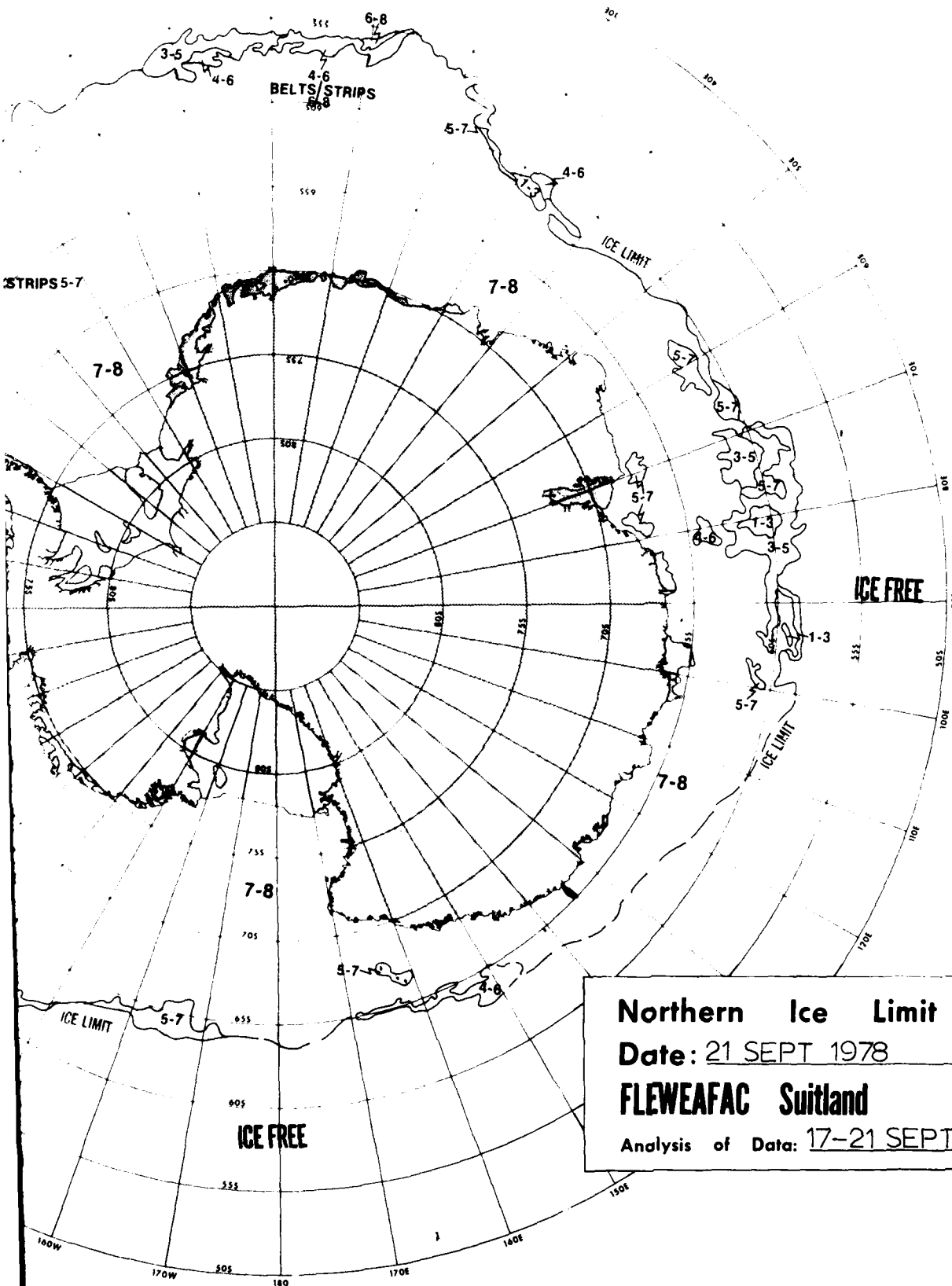
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ICE FREE



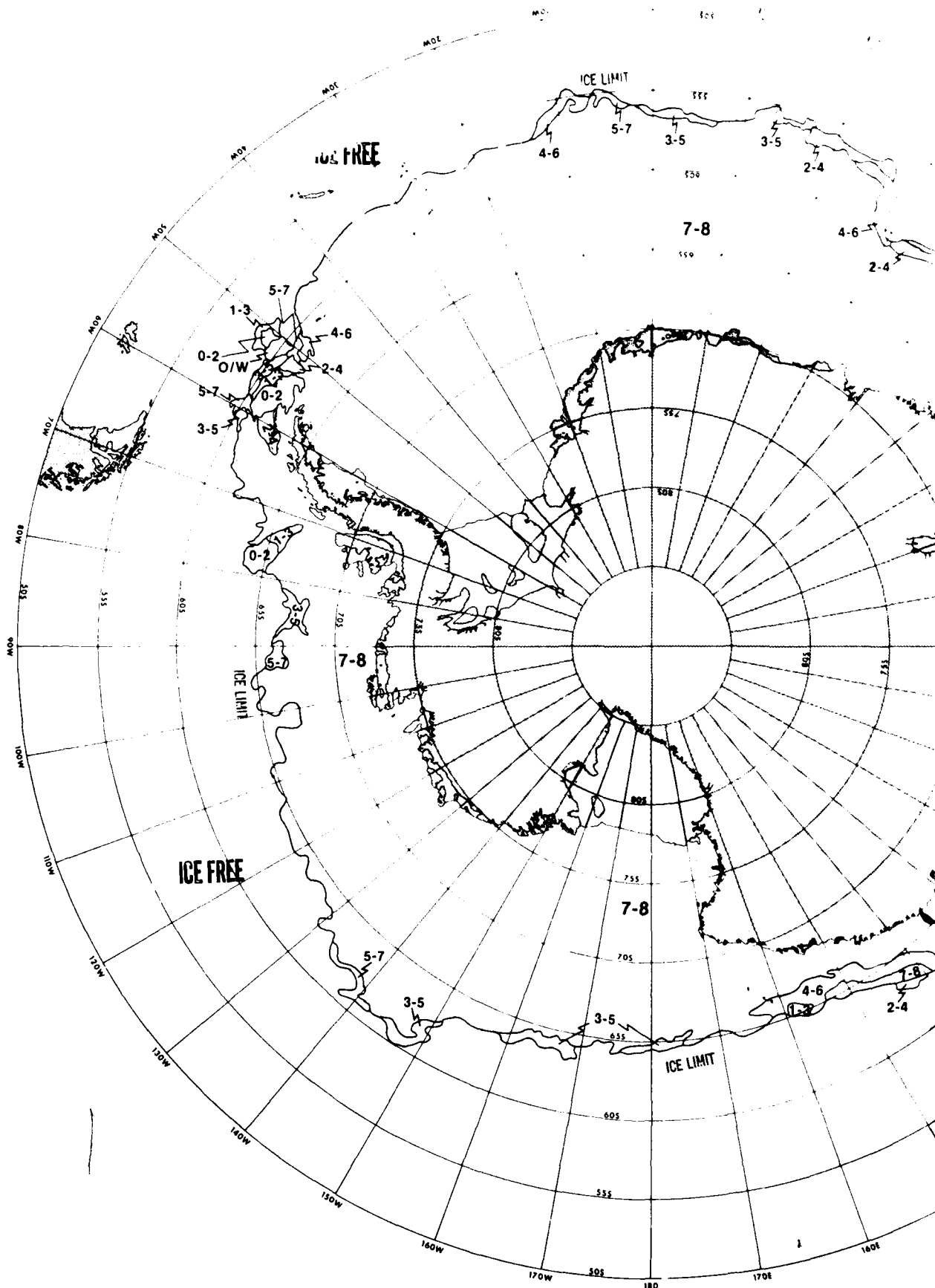
Northern Ice Limit

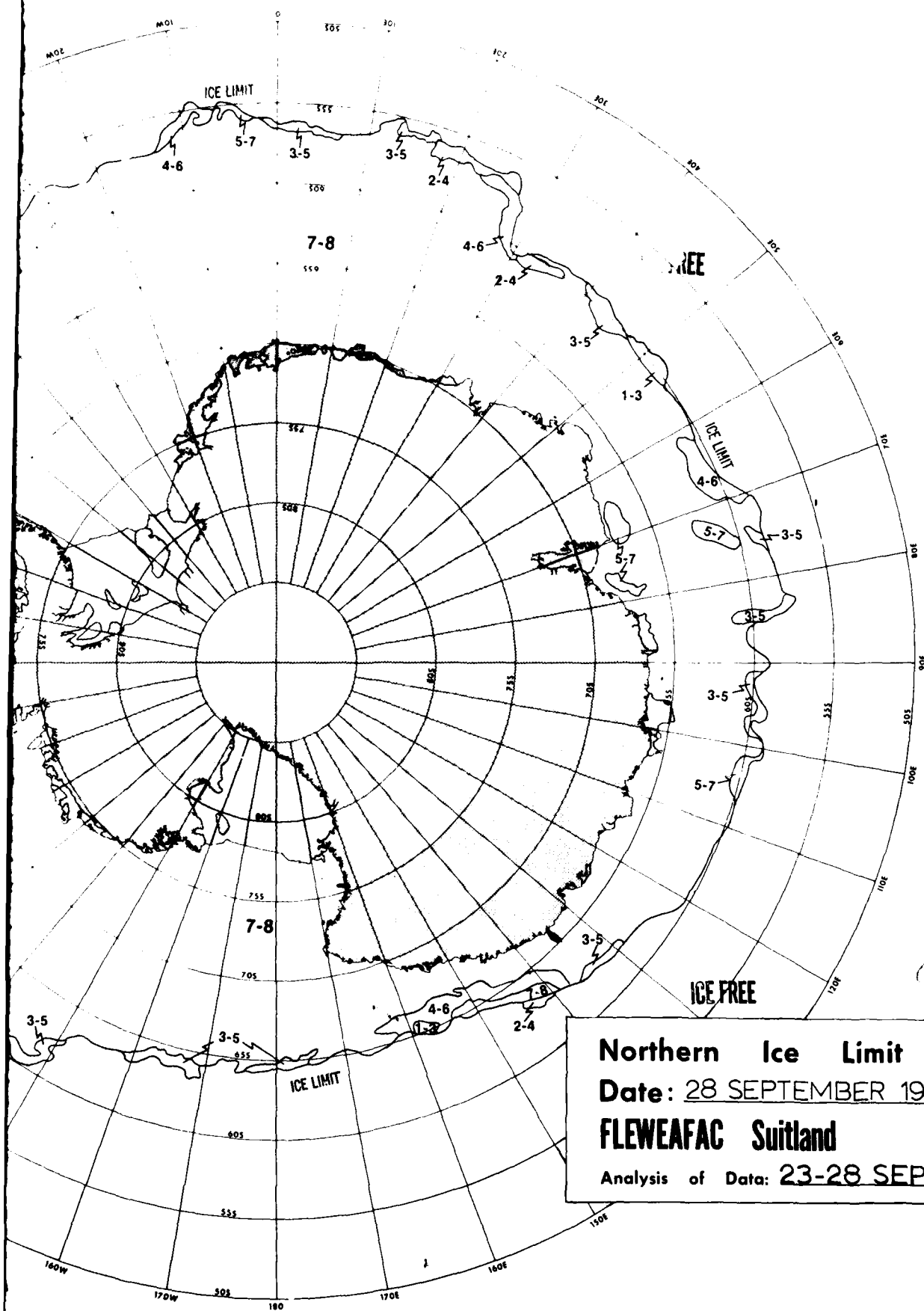
Date: 21 SEPT 1978

FLEWEAFAC Suitland

Analysis of Data: 17-21 SEPT

2





# Northern Ice Limit

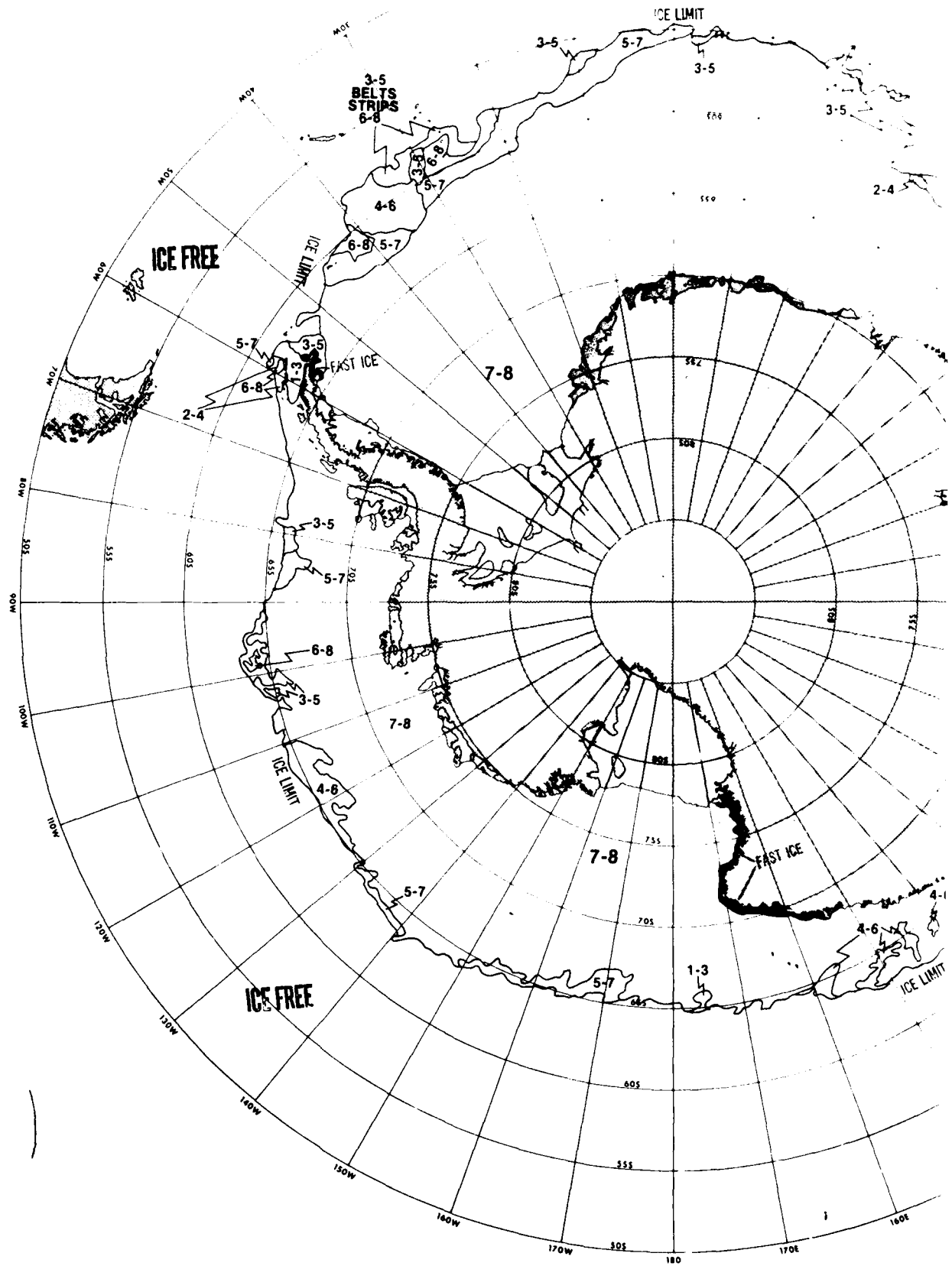
Date: 28 SEPTEMBER 1978

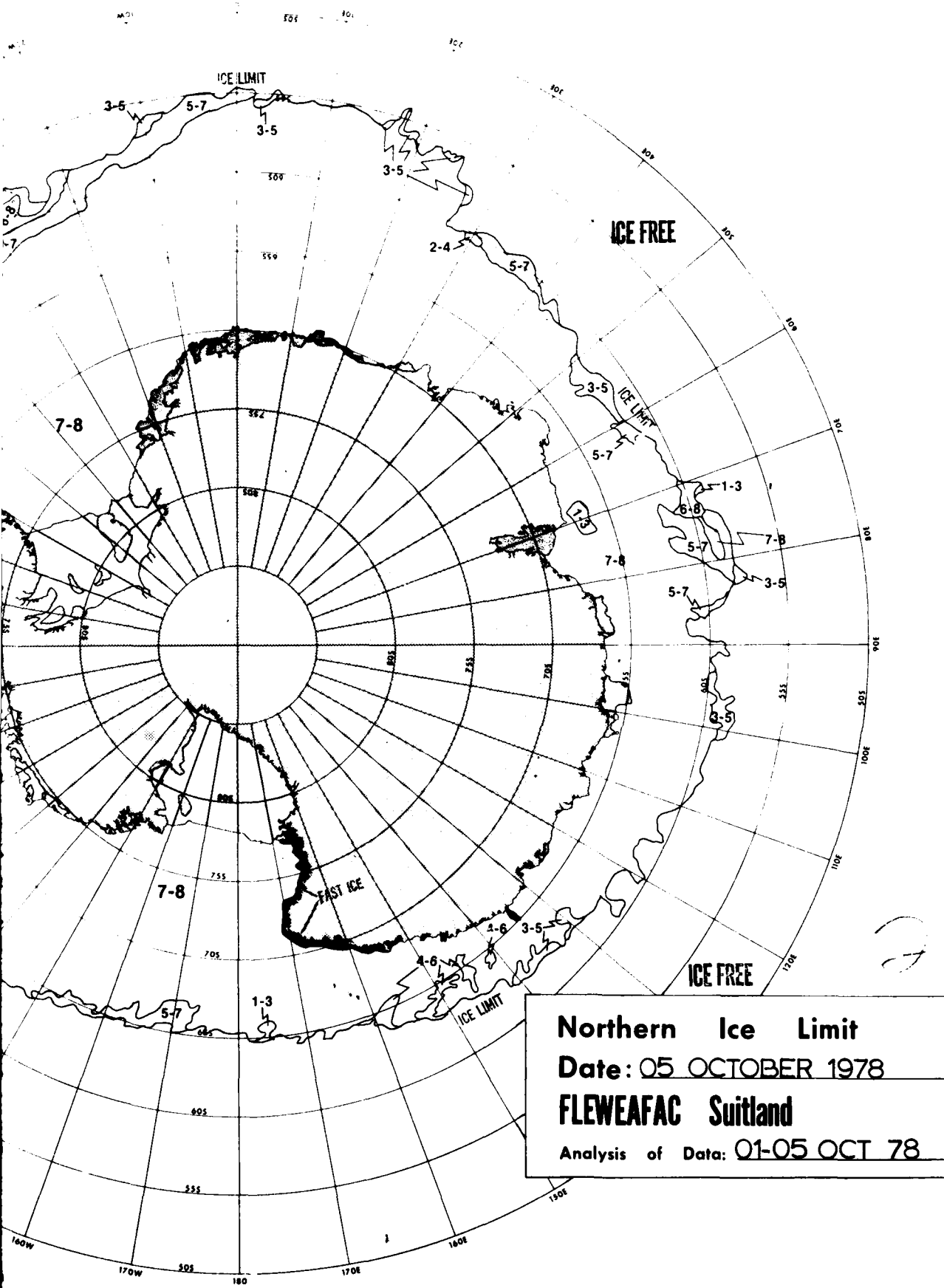
FLEWEAFAC Suitland

Analysis of Data: 23-28 SEPT 78

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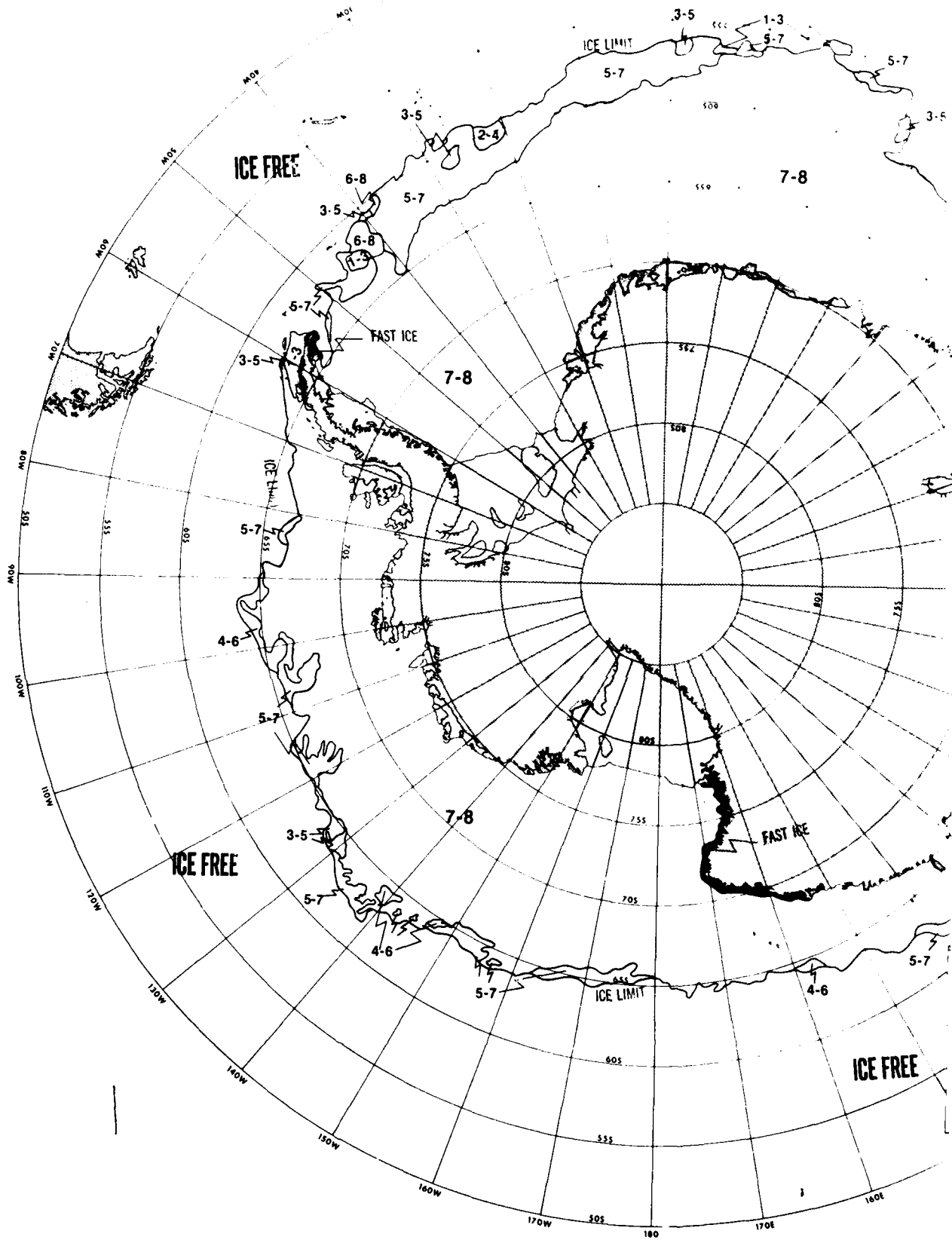
**Northern Ice Limit**

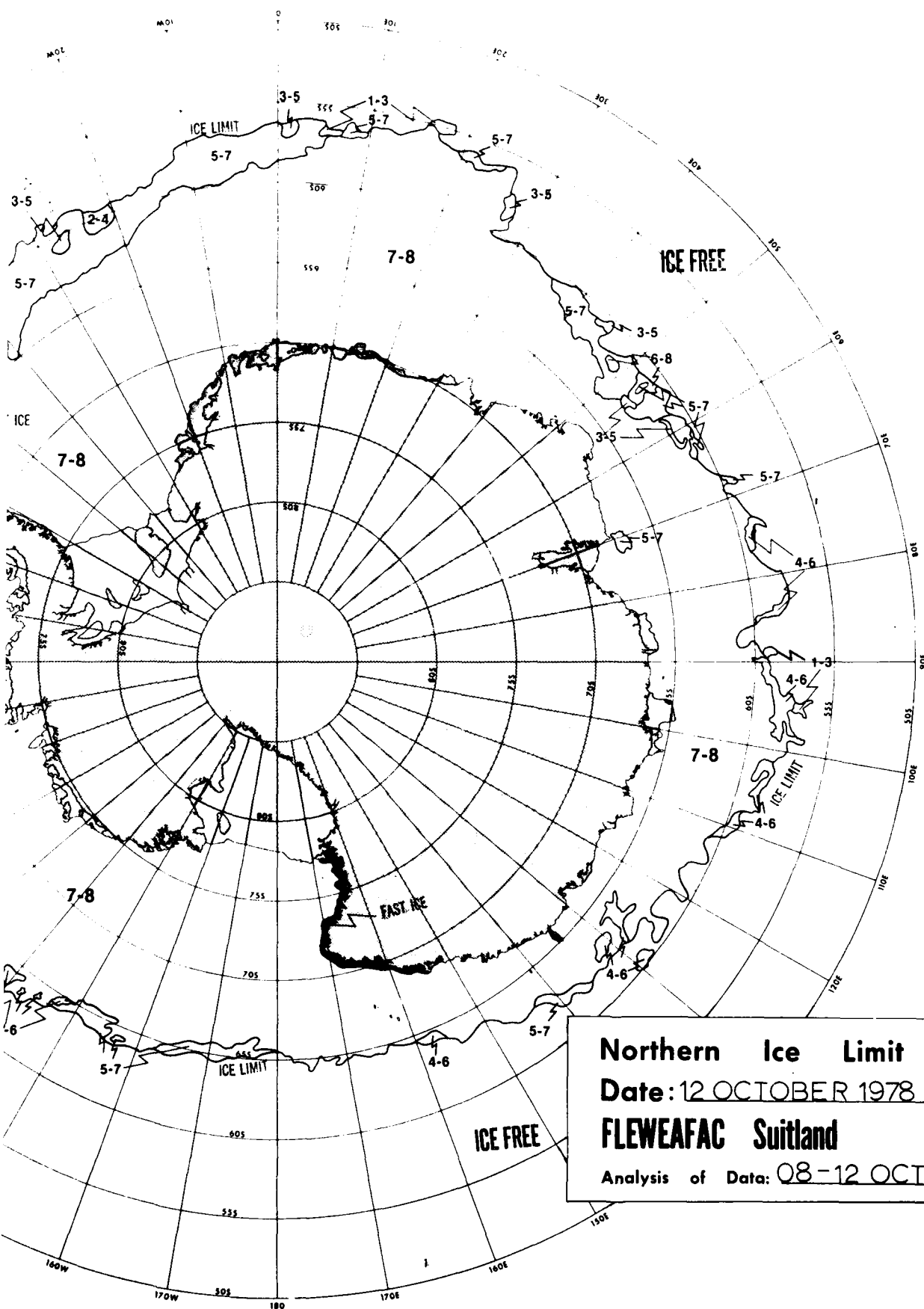
**Date: 05 OCTOBER 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 01-05 OCT 78**

2





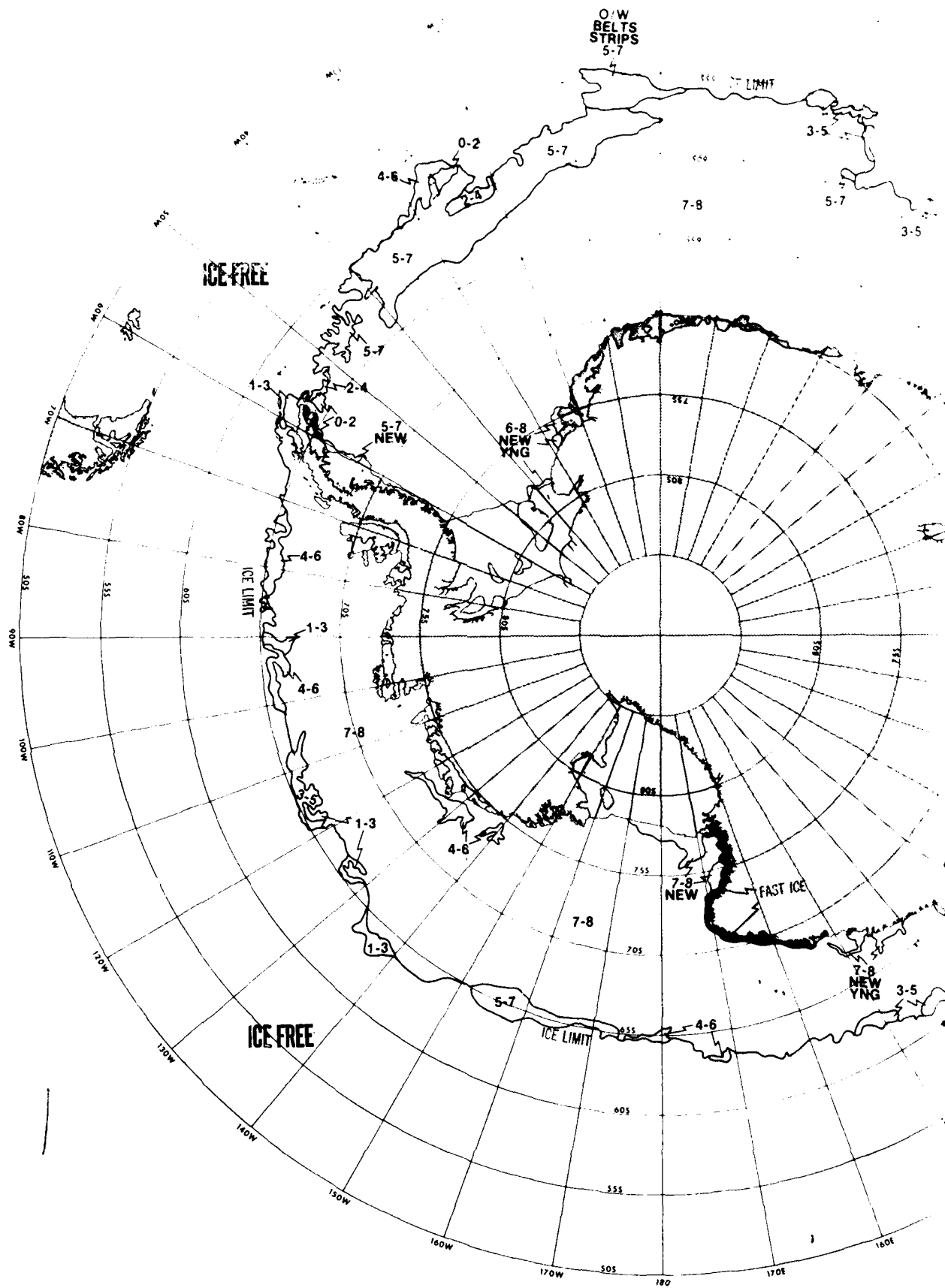
**Northern Ice Limit**

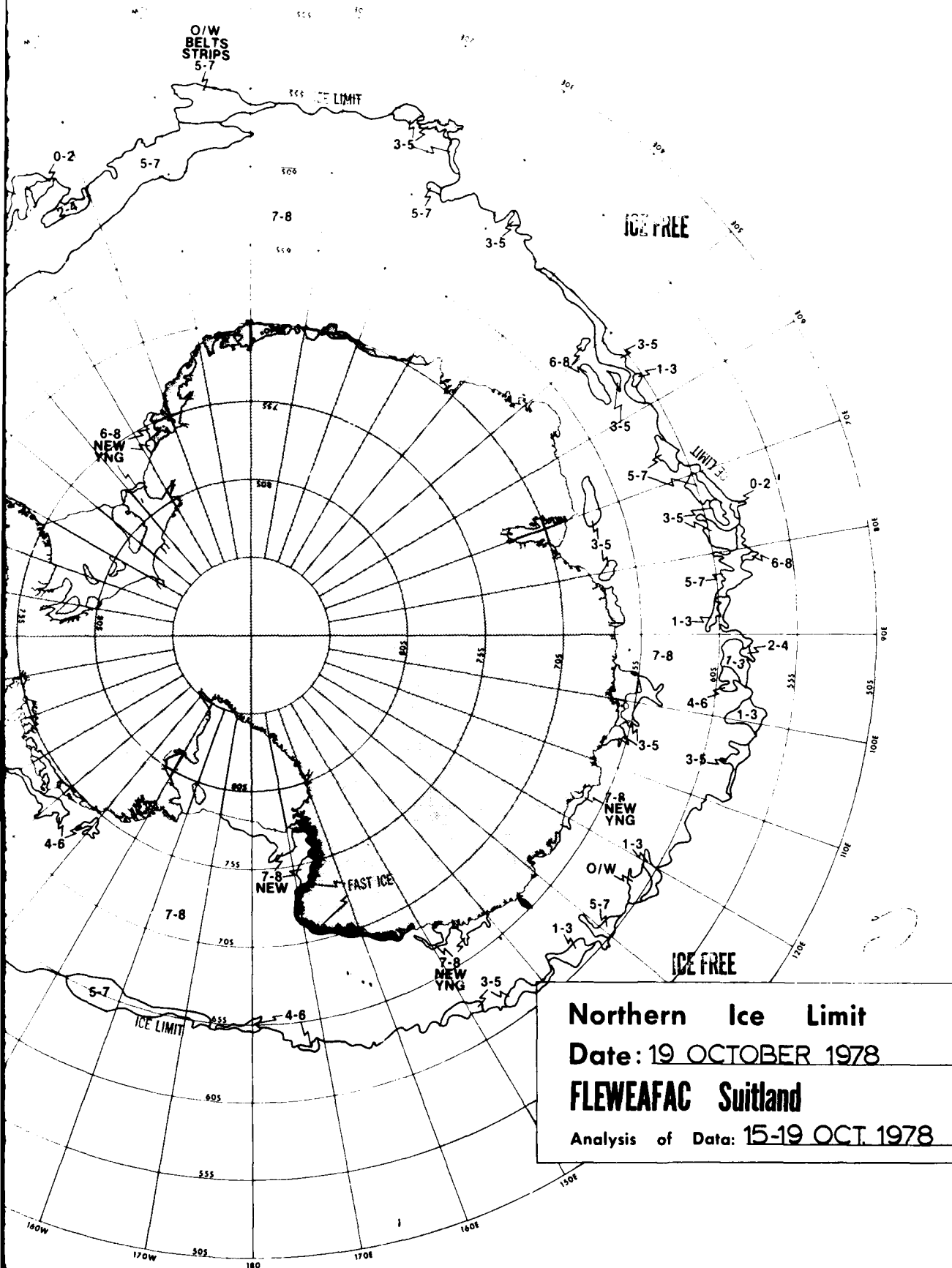
**Date: 12 OCTOBER 1978**

**FLEWEAFAC Suitland**

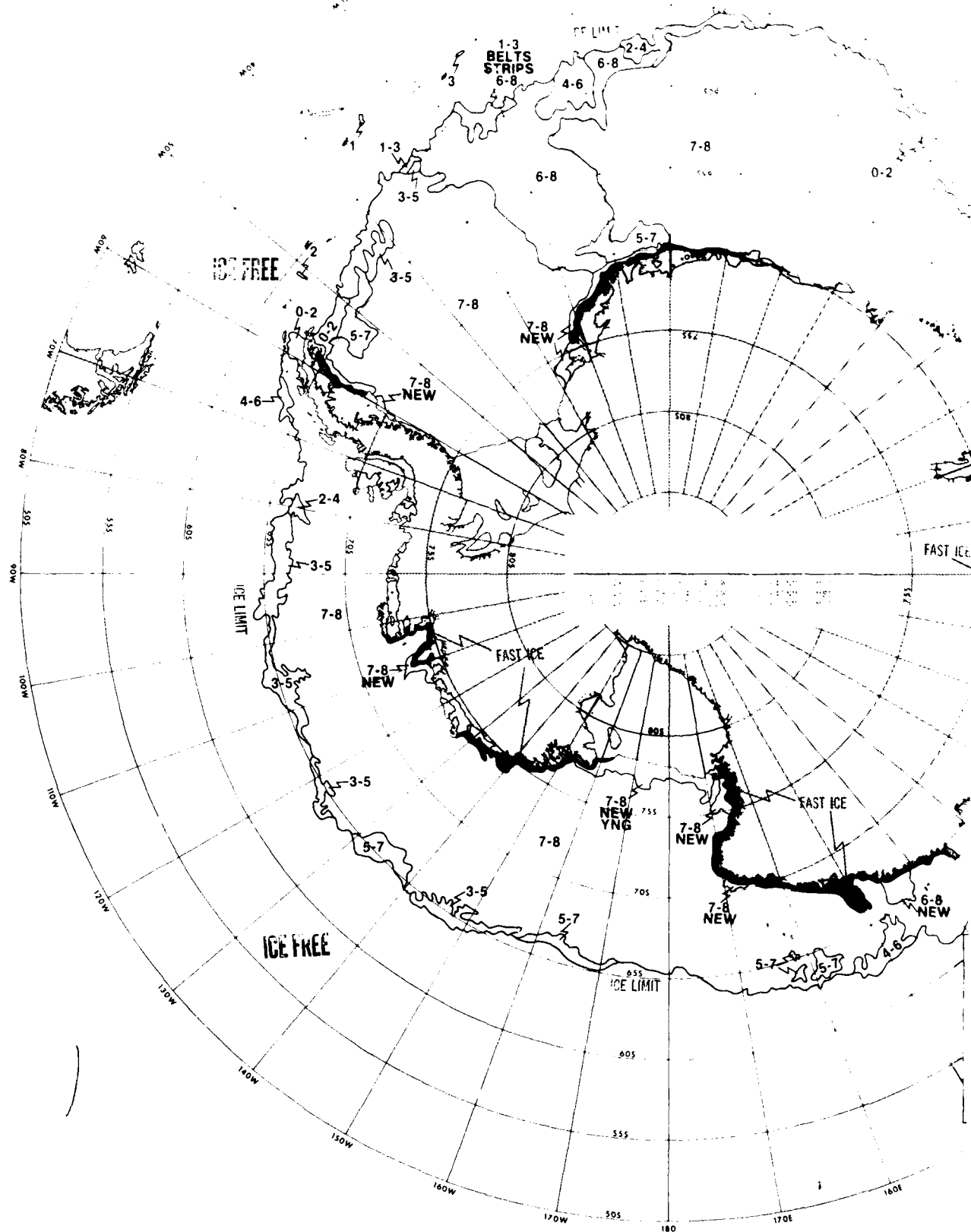
**Analysis of Data: 08-12 OCT**

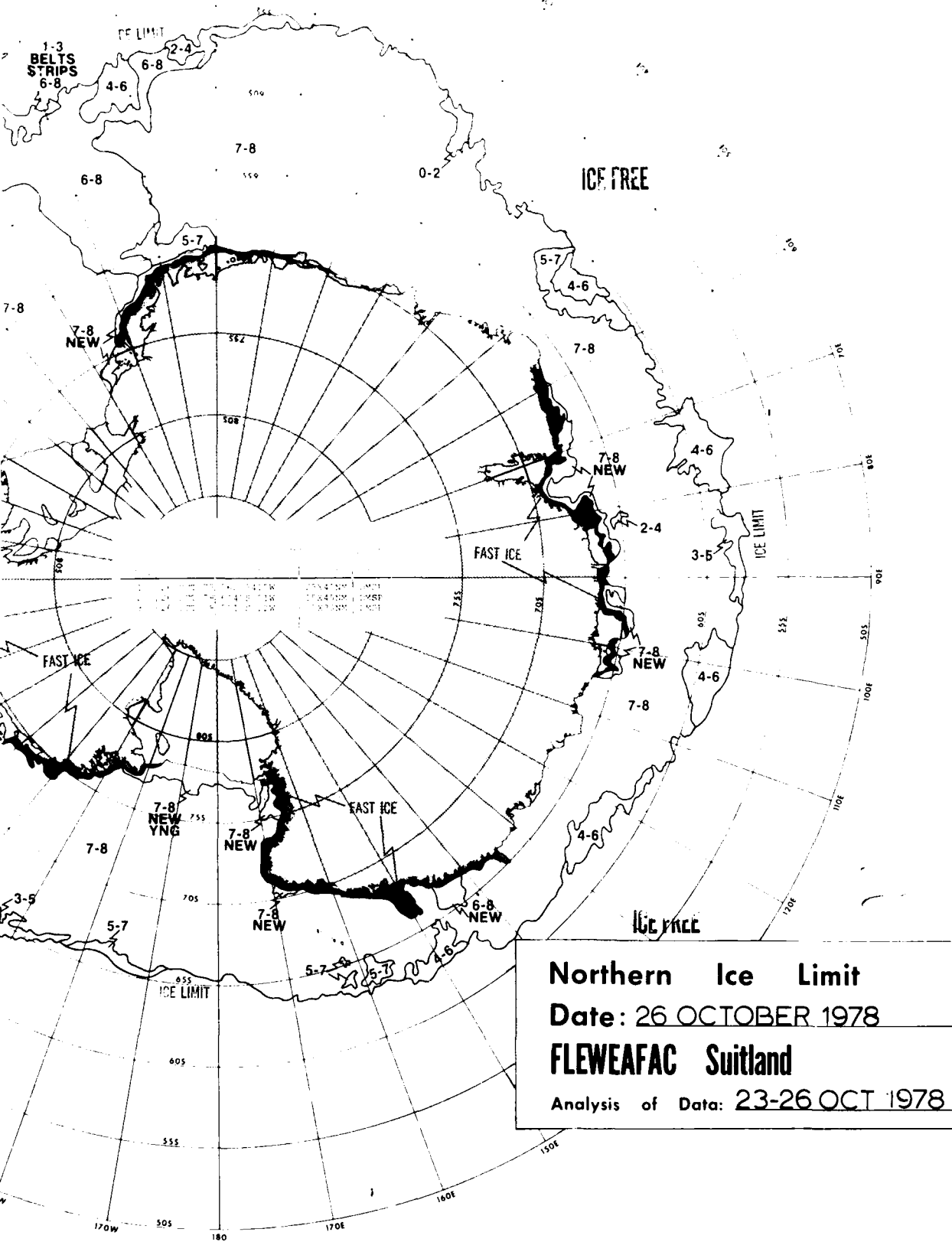
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ANTARCTIC ICE CHARTS, 1977-1978.(U)  
1978

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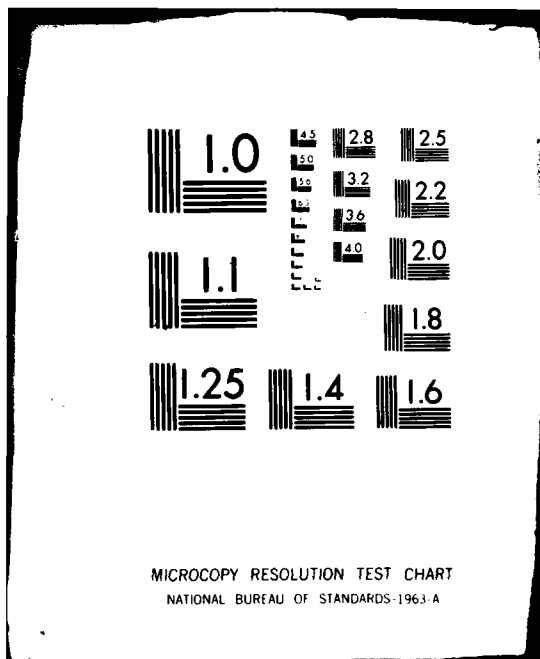
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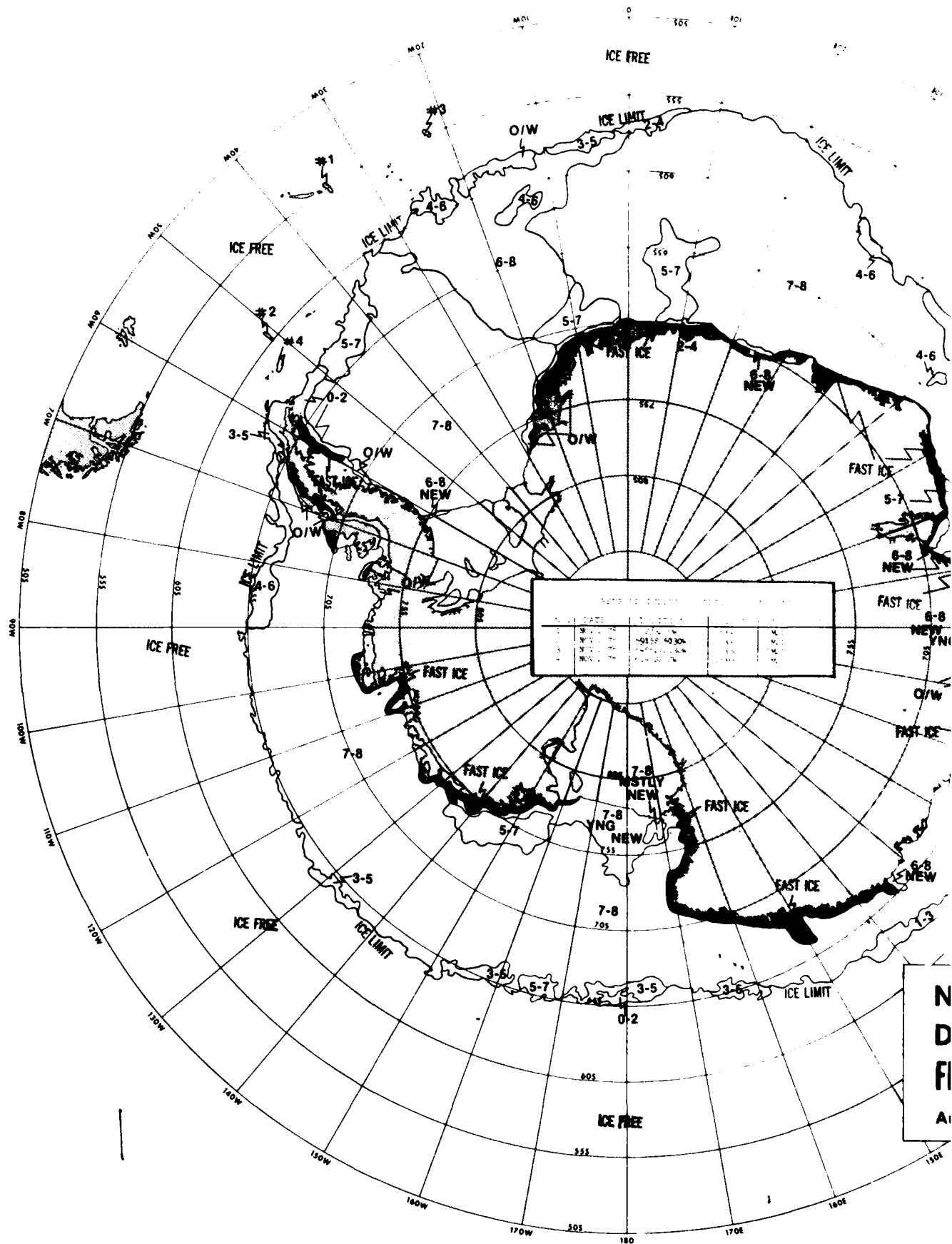
3 0P 3

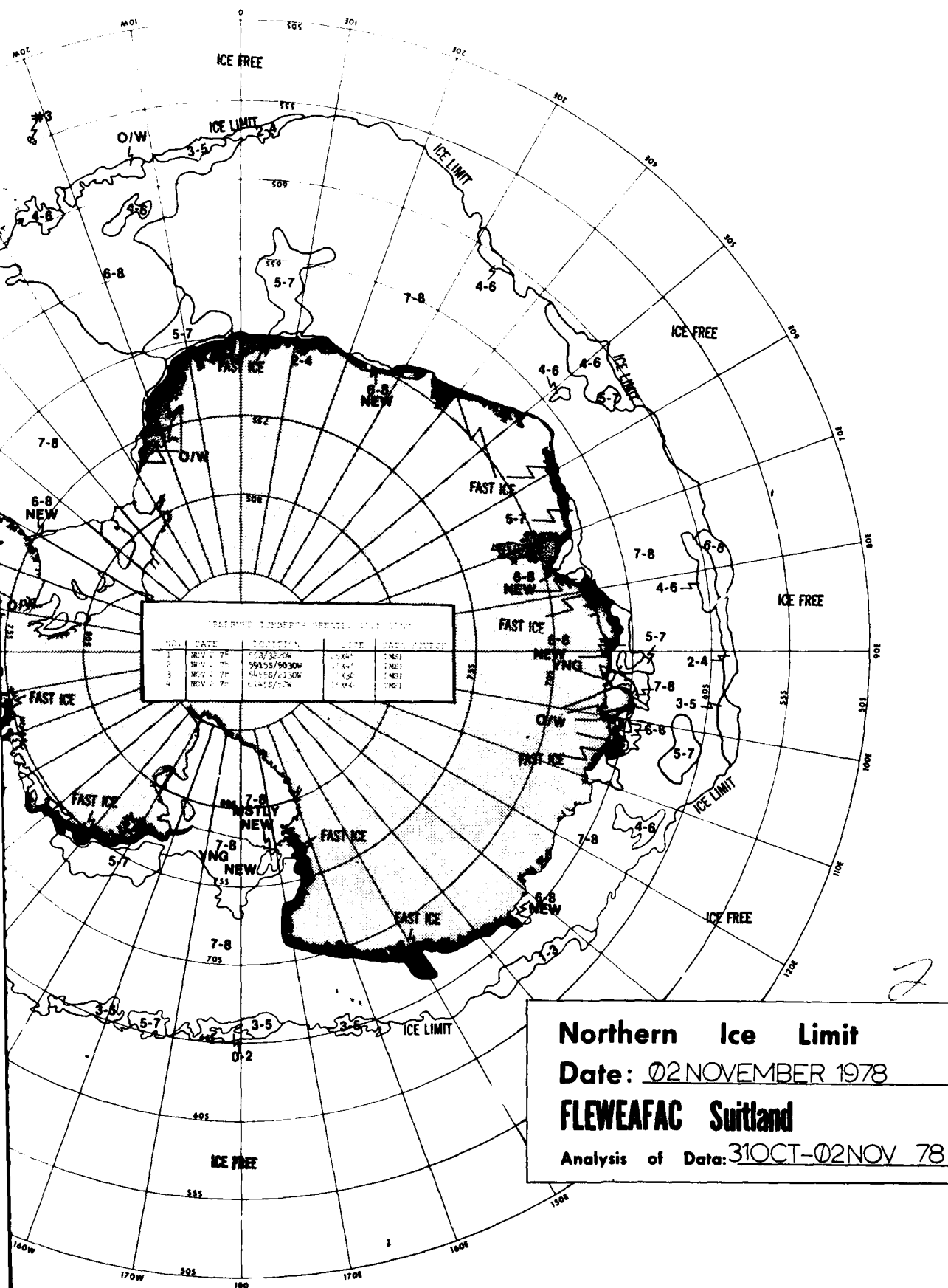
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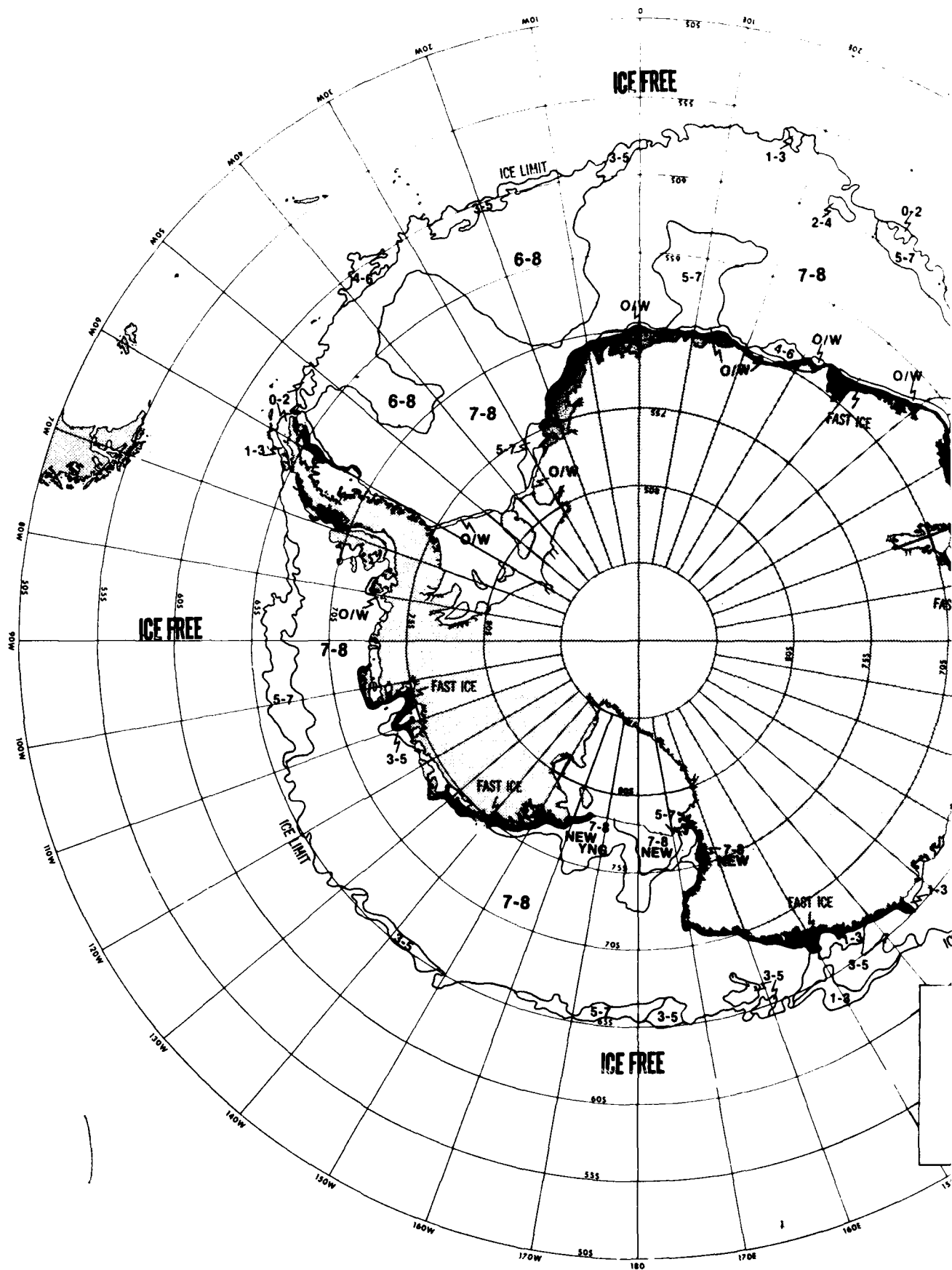


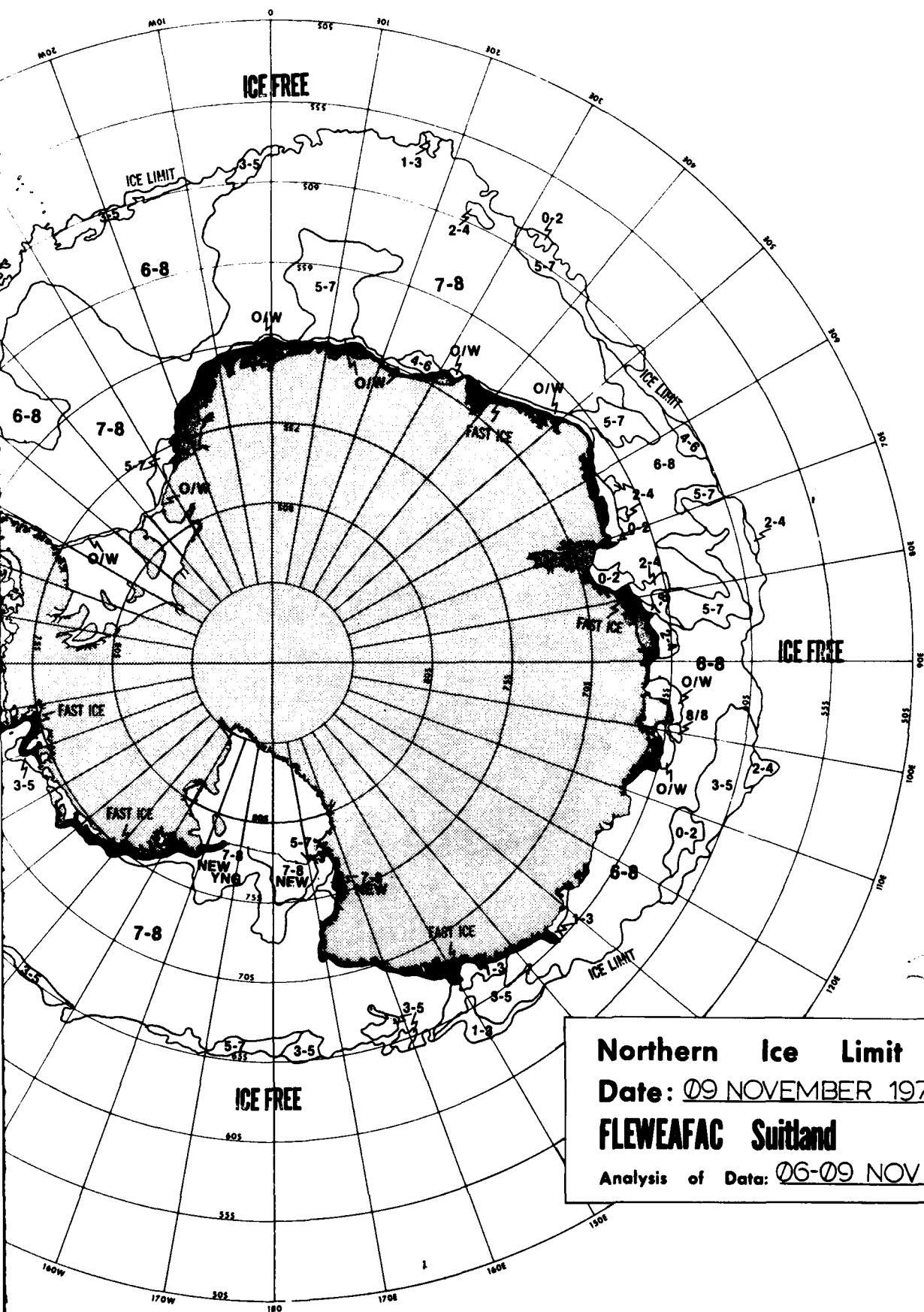
END
DATE
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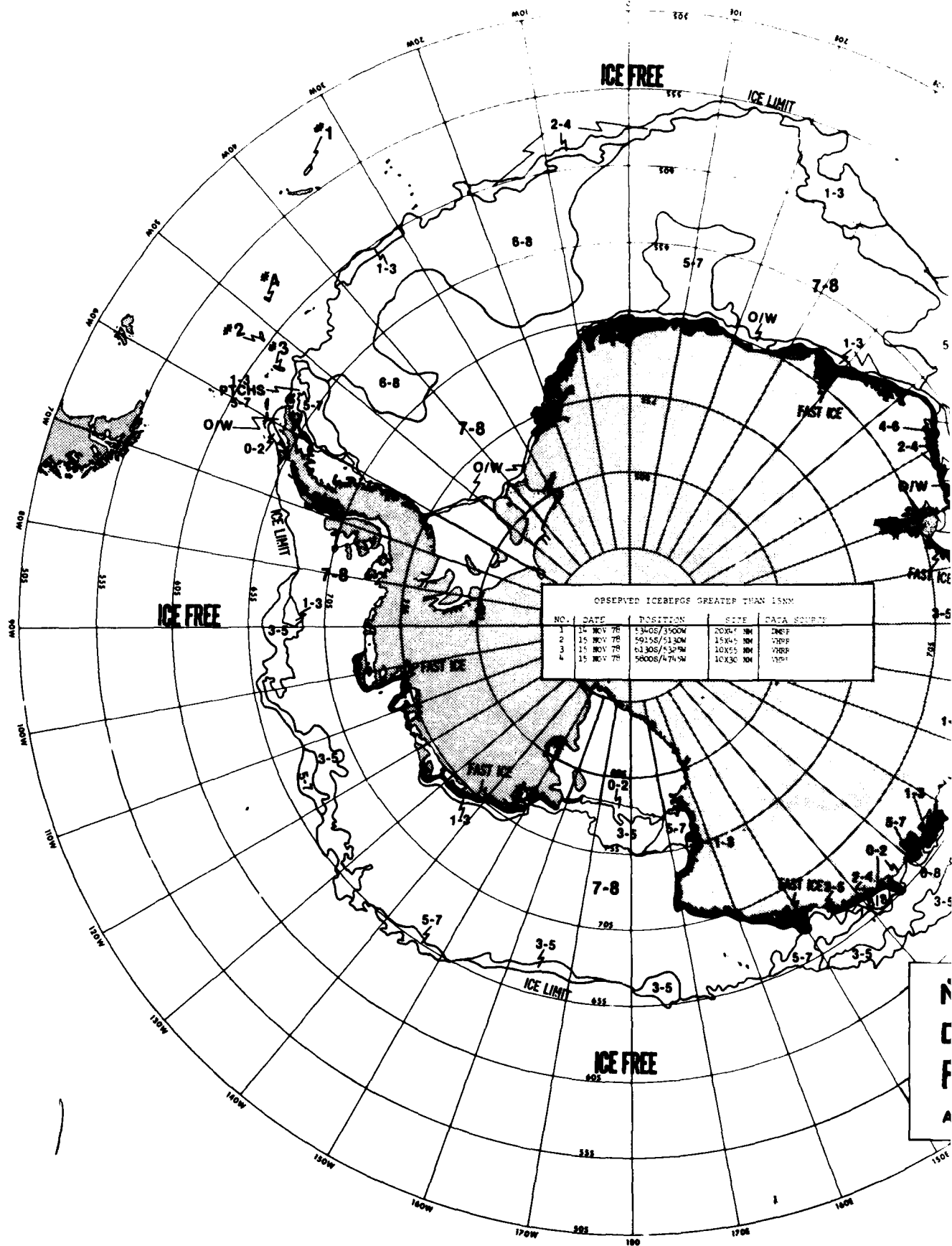


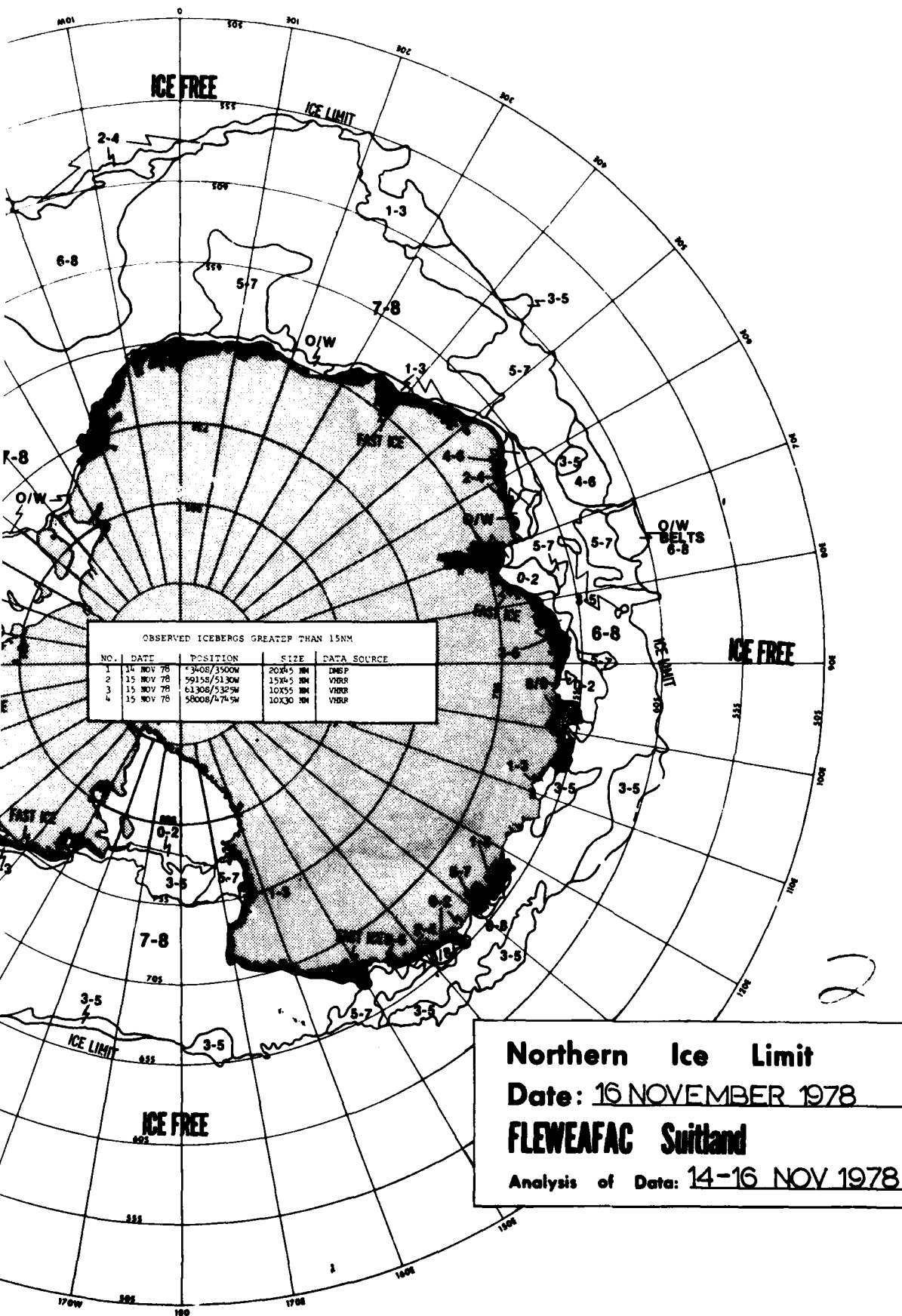




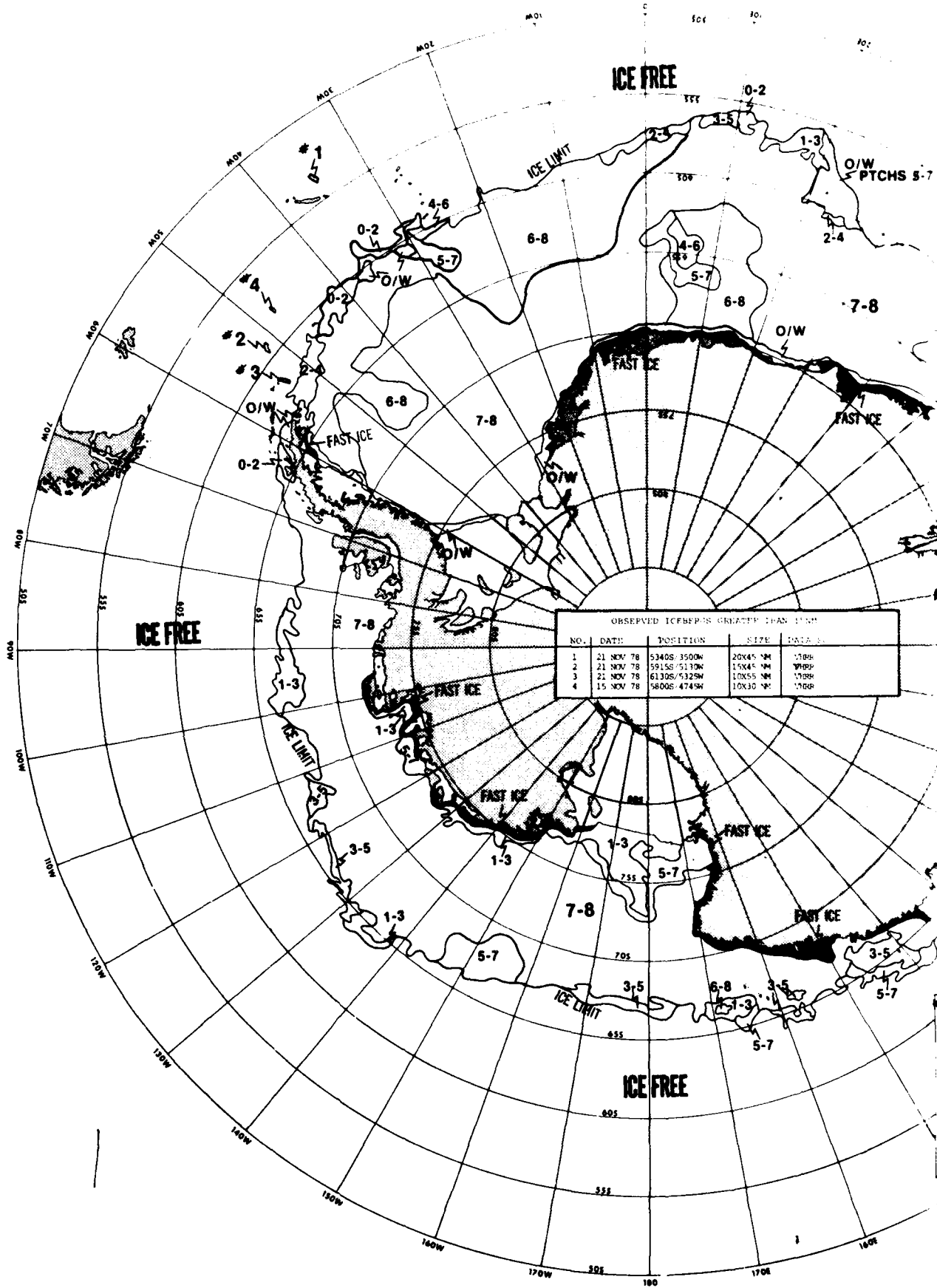


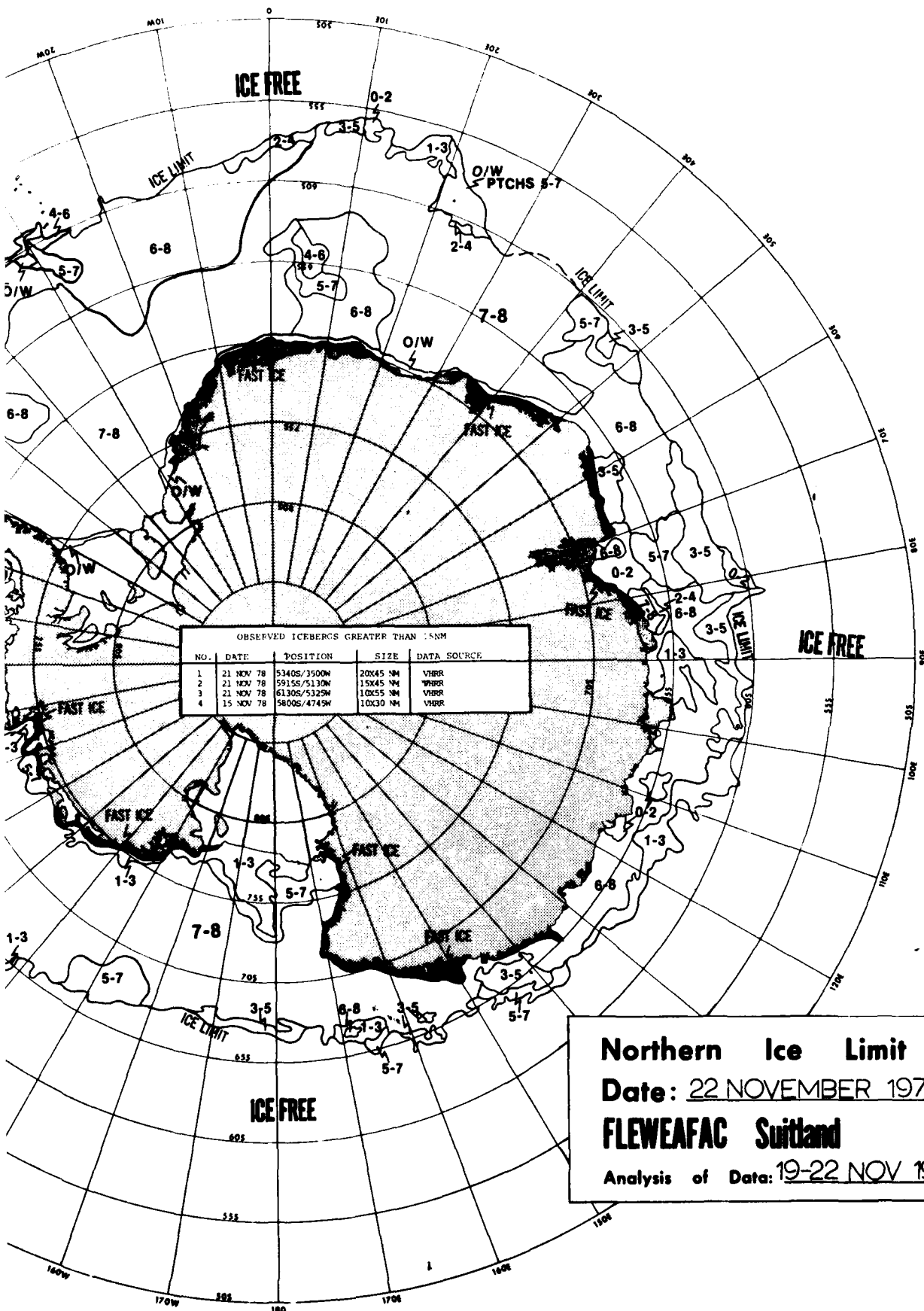
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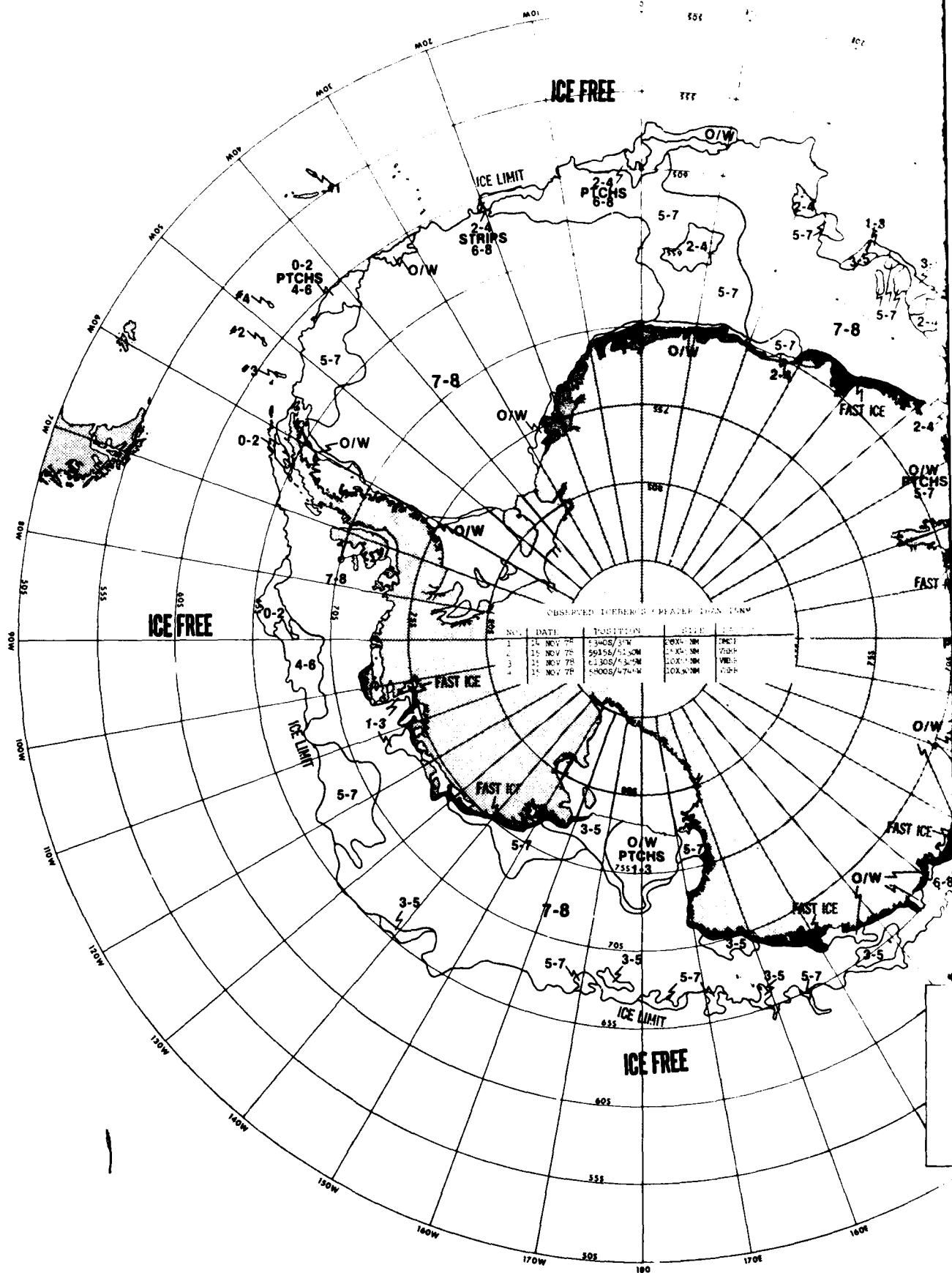
**Northern Ice Limit**

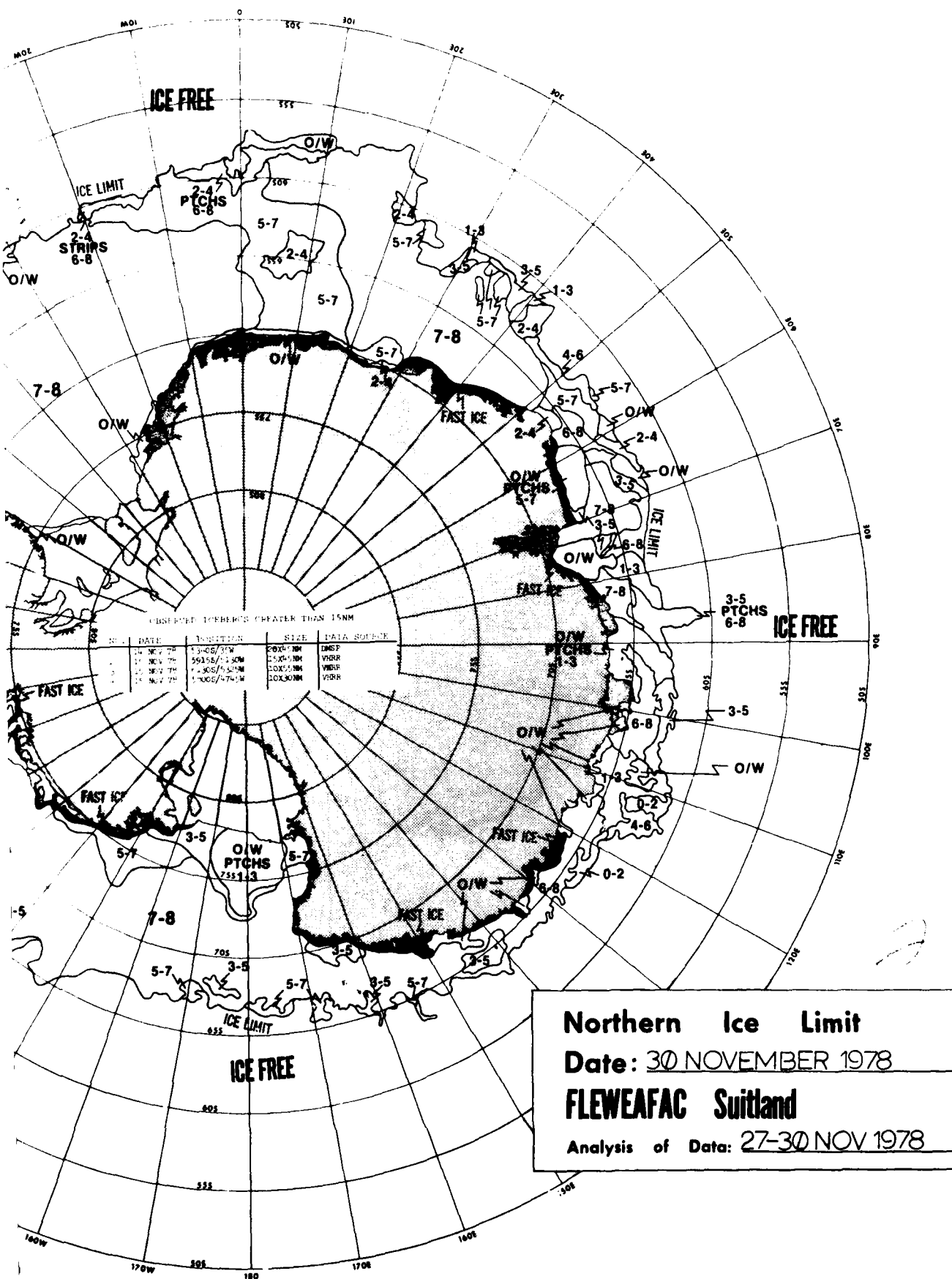
**Date:** 22 NOVEMBER 1978

**FLEWEAFAC Svalbard**

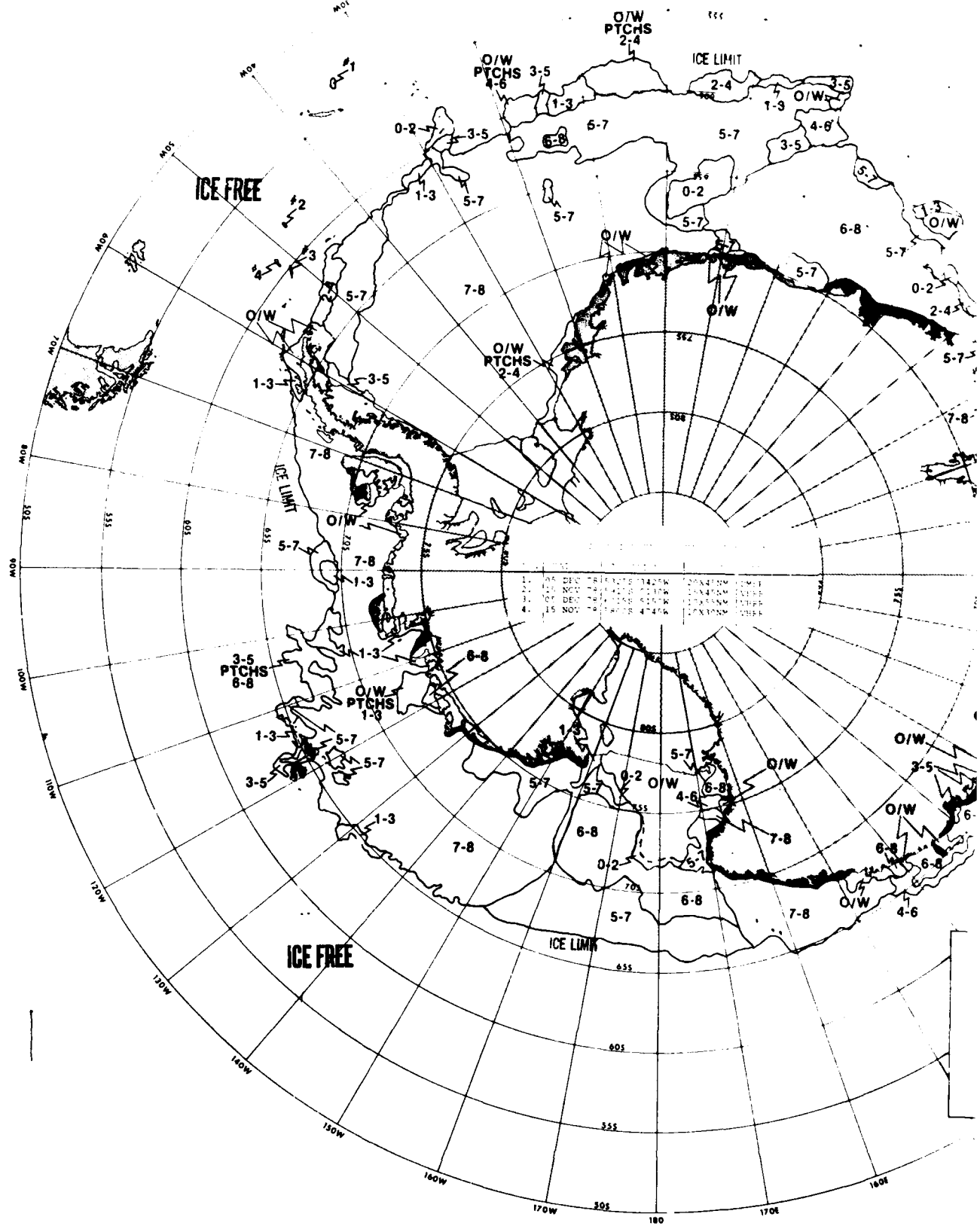
**Analysis of Data:** 19-22 NOV 1978

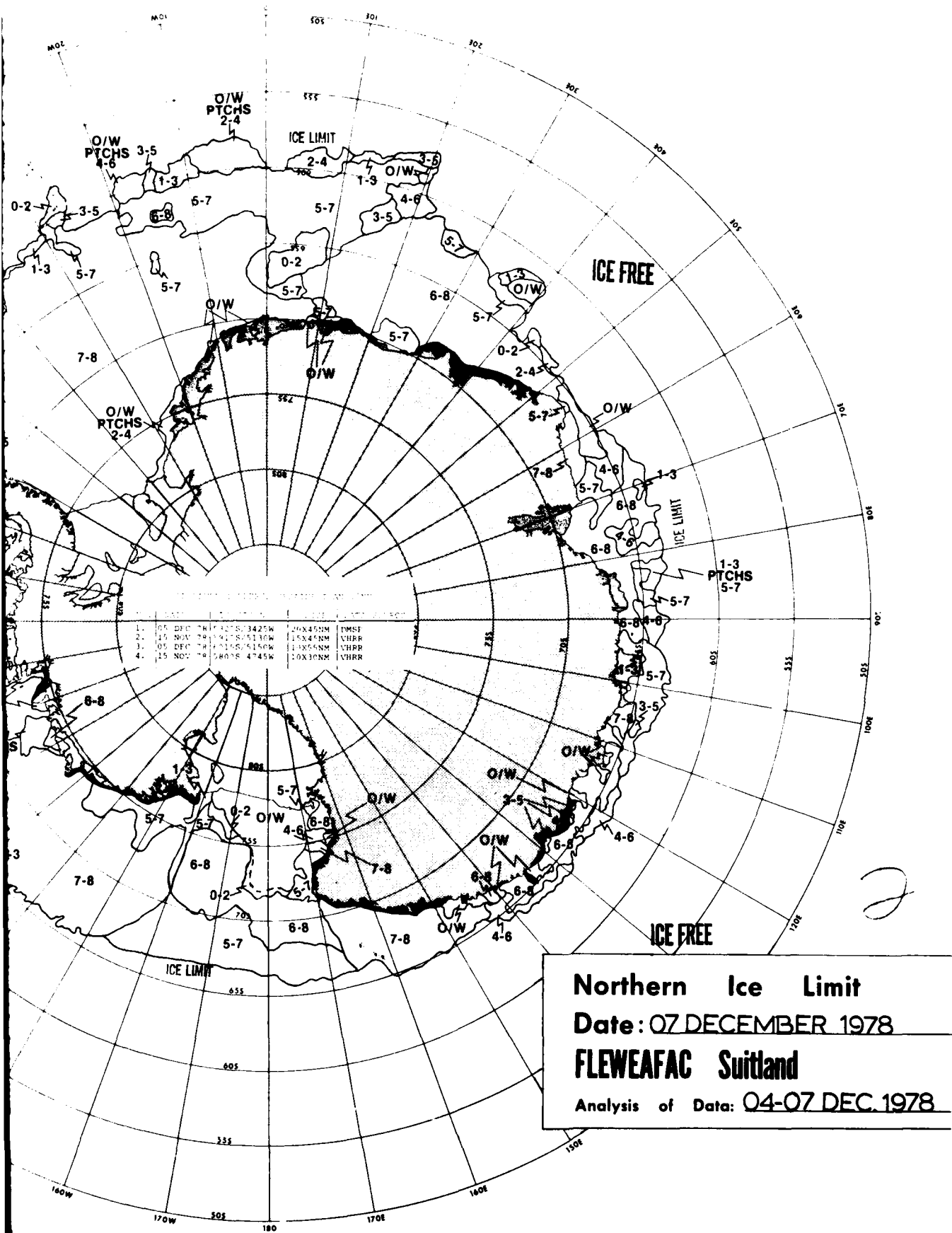
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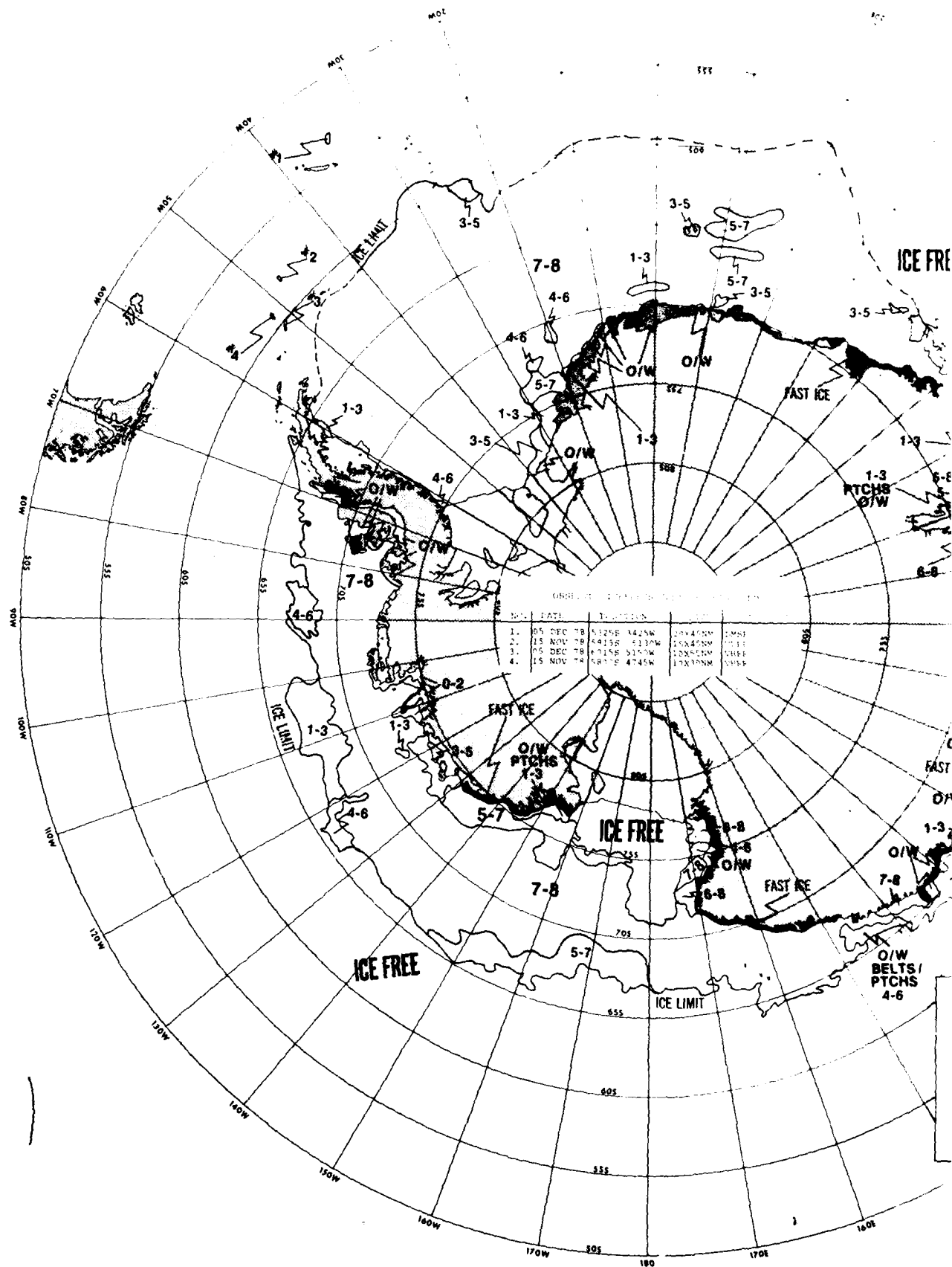
# Northern Ice Limit

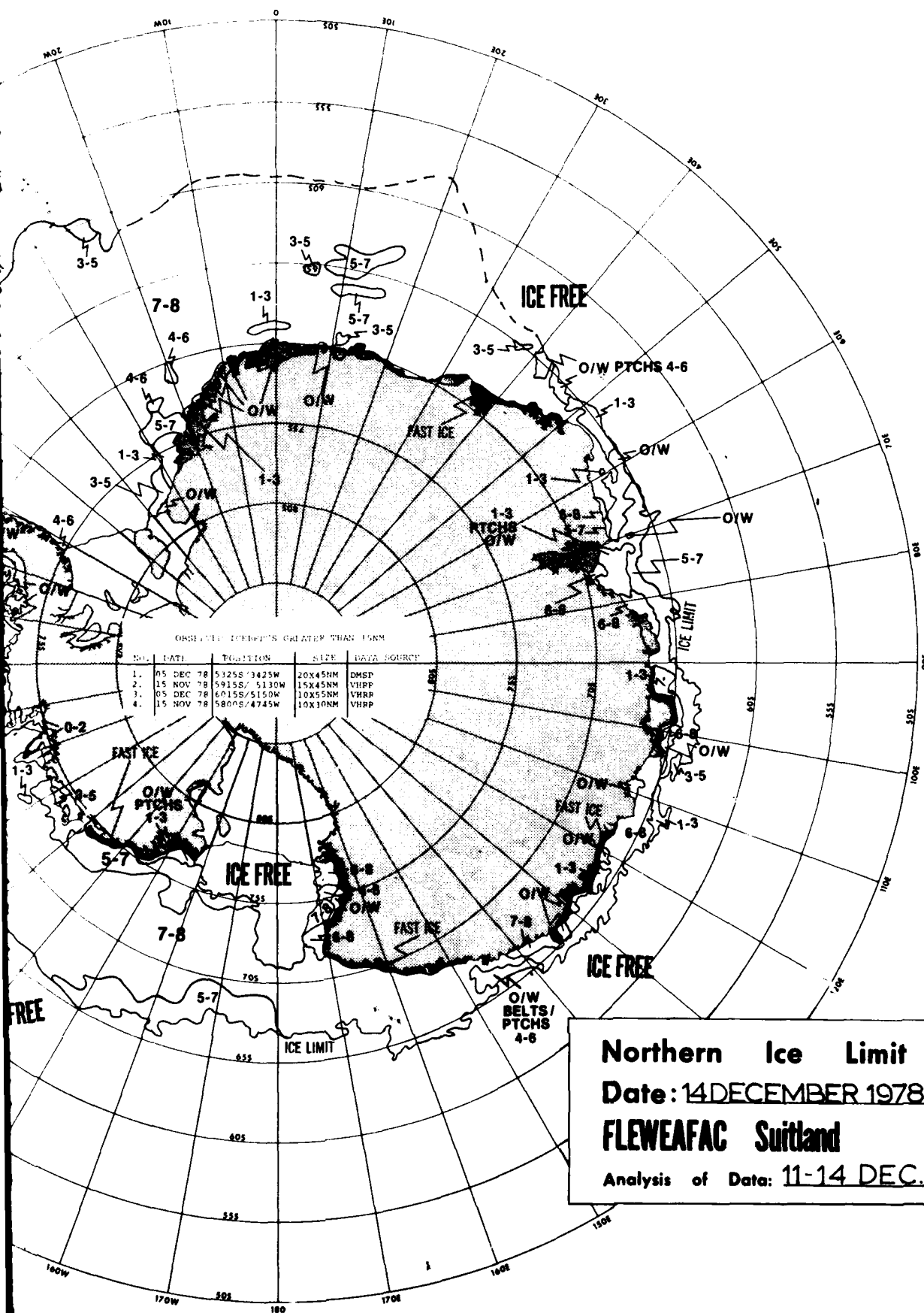
Date: 07 DECEMBER 1978

FLEWEAFAC Suitland

Analysis of Data: 04-07 DEC. 1978

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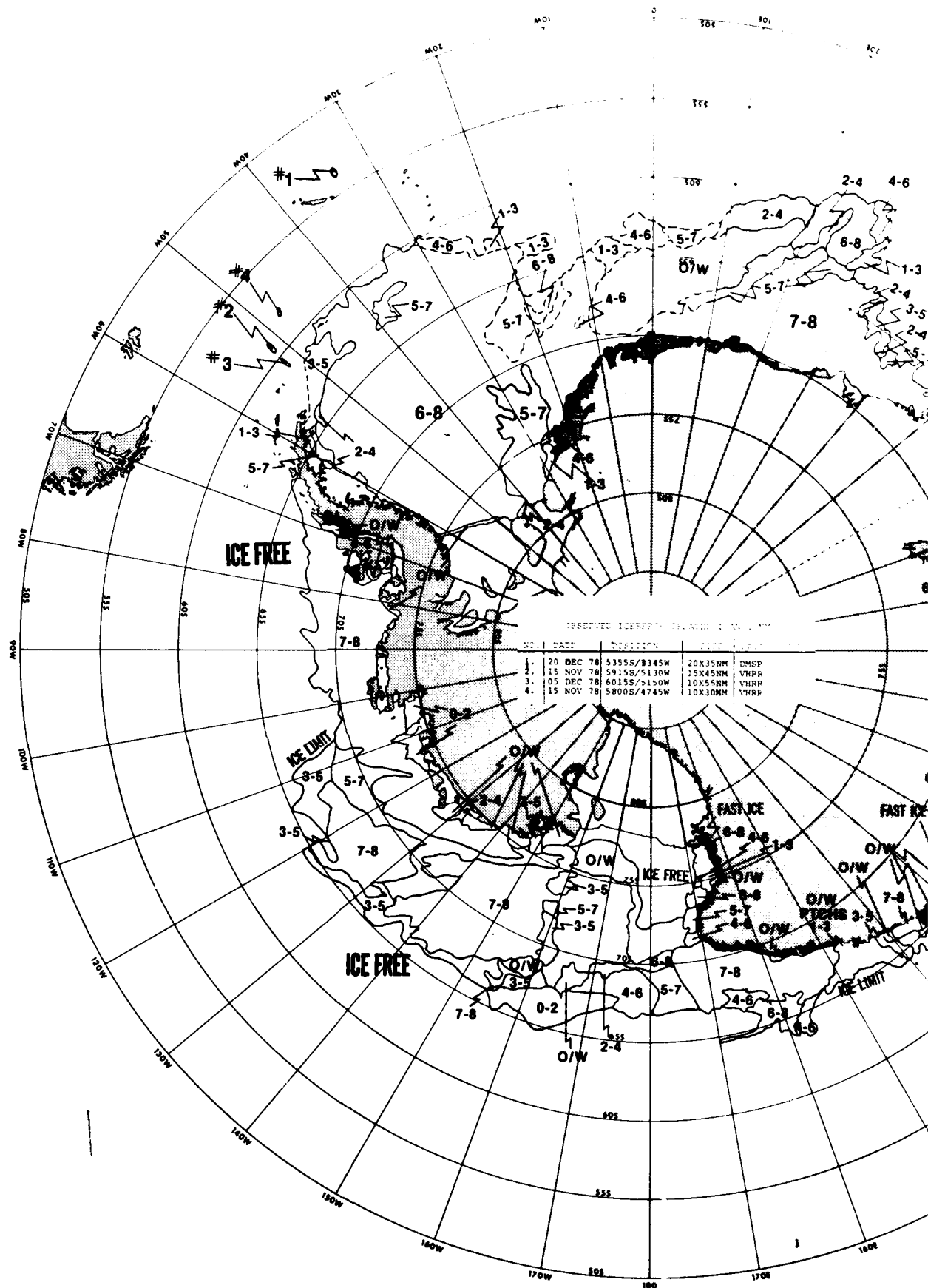
**Northern Ice Limit**

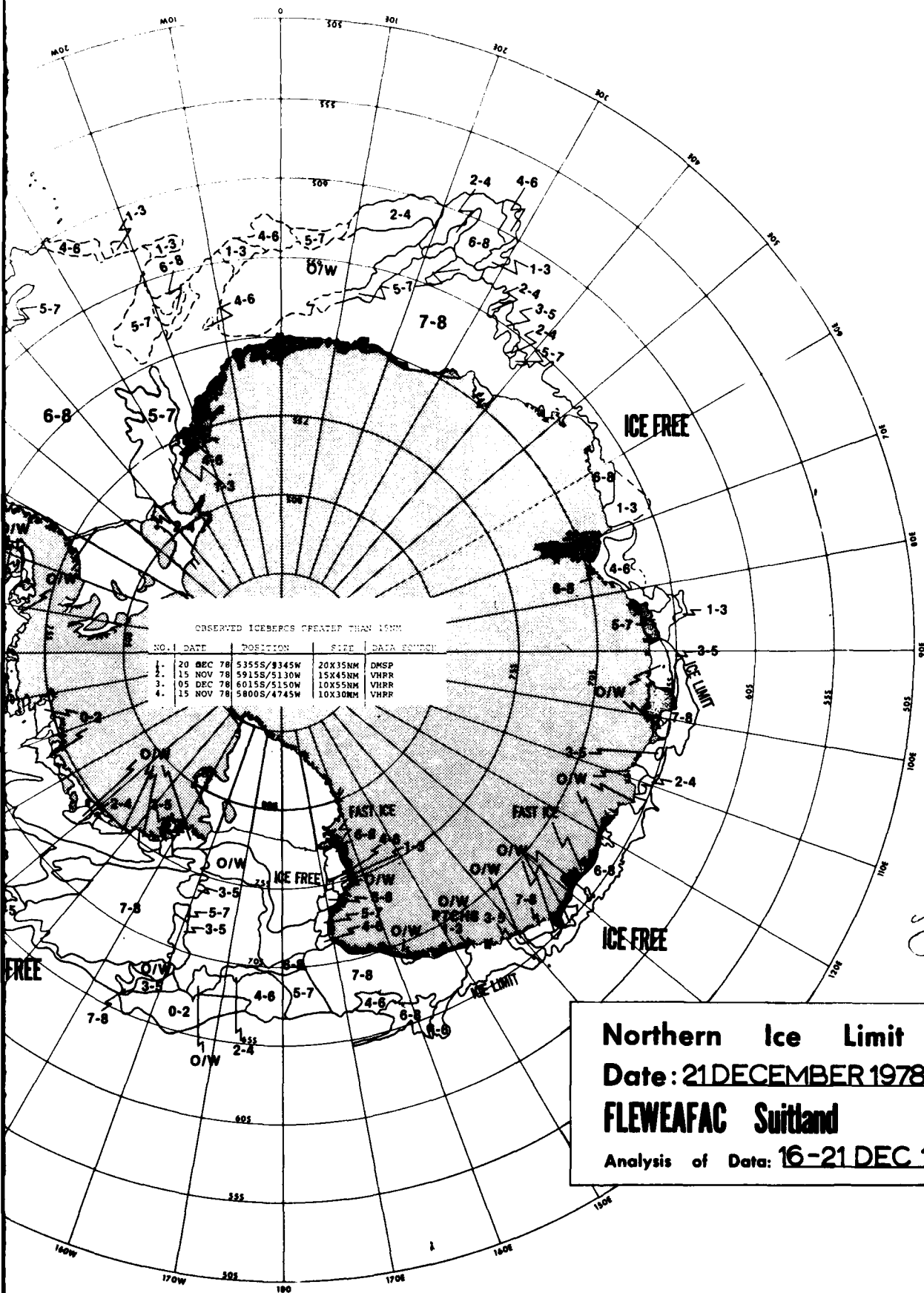
**Date: 14 DECEMBER 1978**

**FLEWEAFAC Surtland**

**Analysis of Data: 11-14 DEC. 1978**







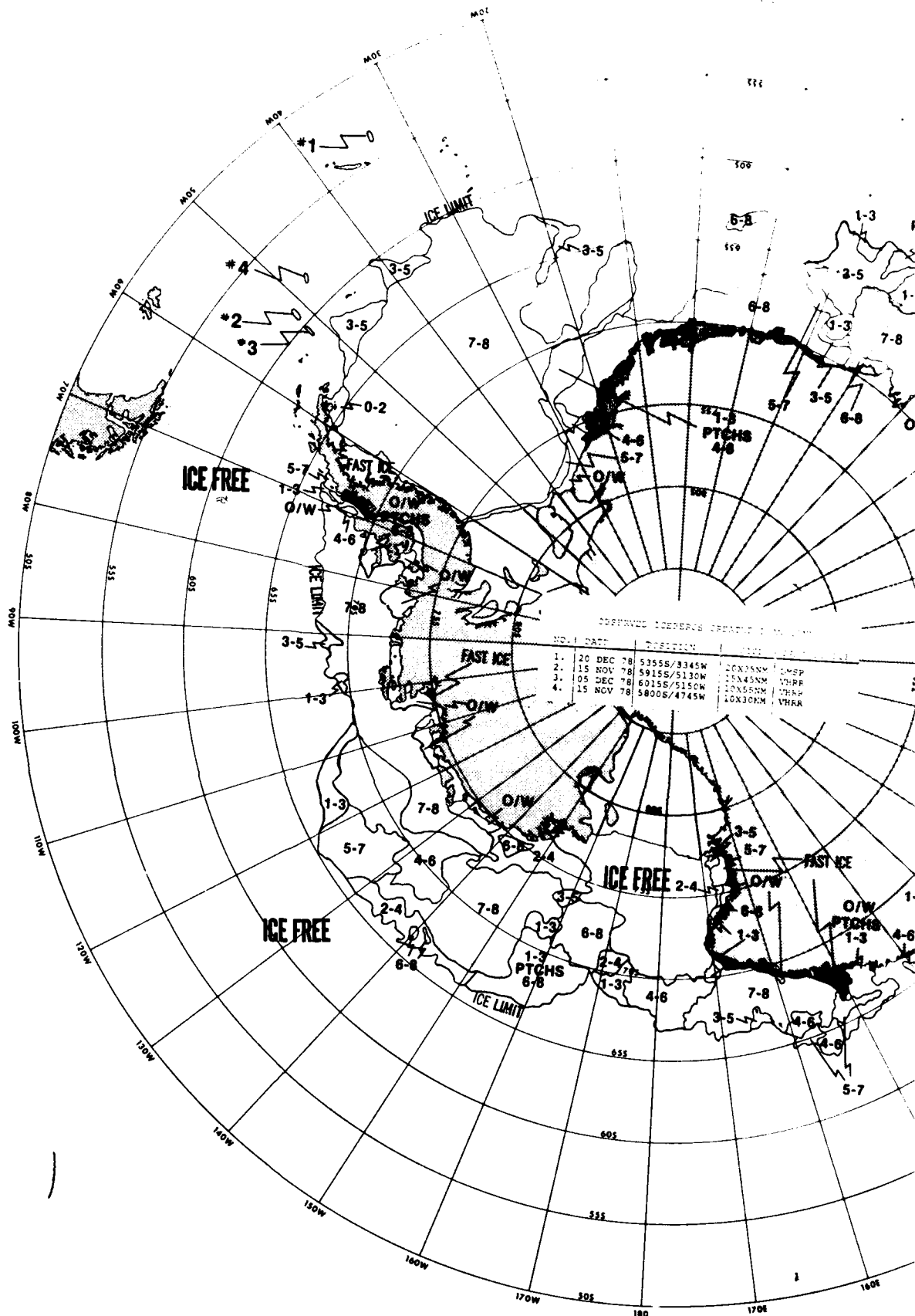
**Northern Ice Limit**

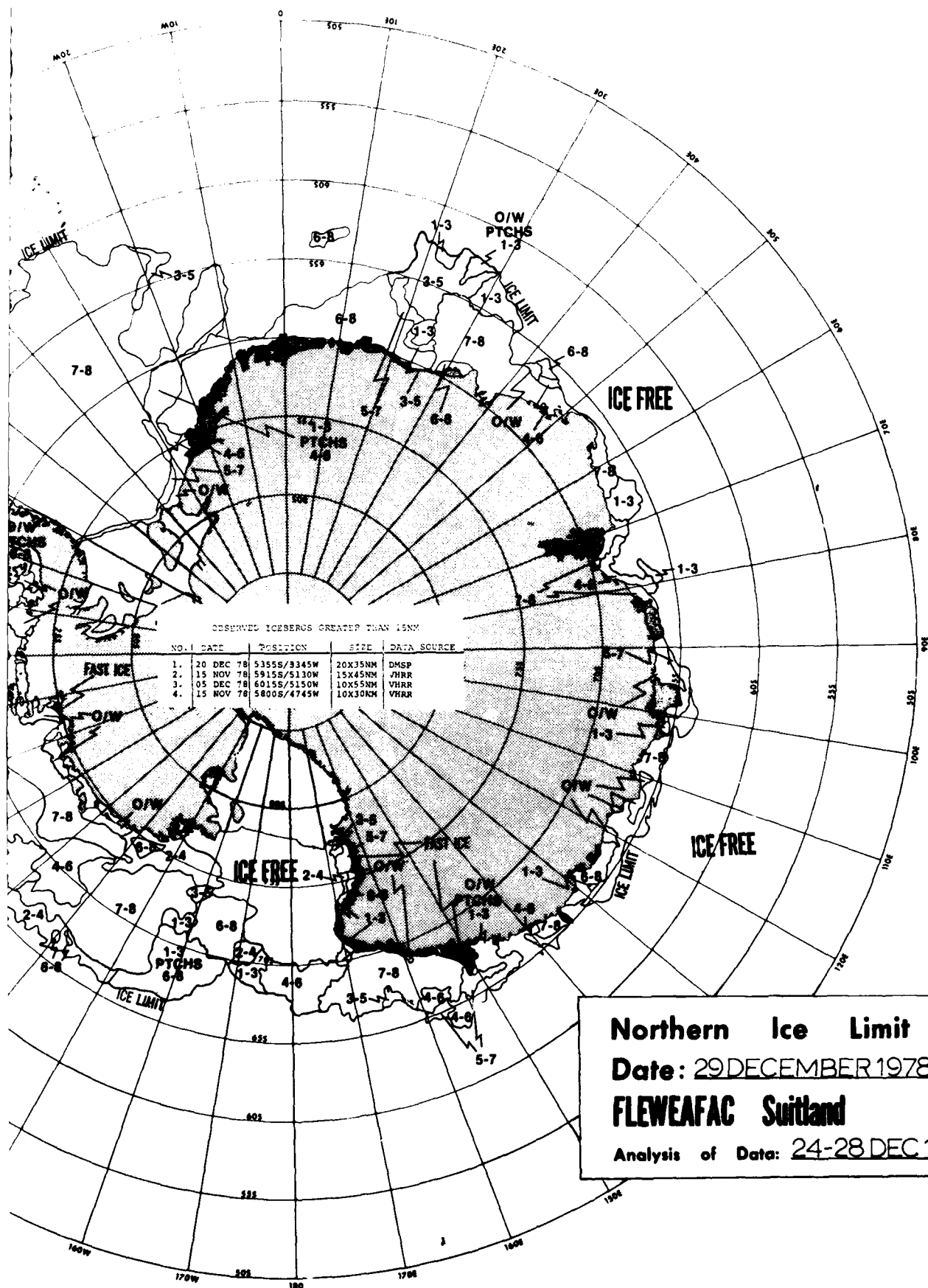
**Date: 21 DECEMBER 1978**

**FLEWEAFAC Suitland**

**Analysis of Data: 16-21 DEC 1978**

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**Northern Ice Limit**

**Date: 29 DECEMBER 1978**

**FLEWEAFAC Svalbard**

**Analysis of Data: 24-28 DEC 1978**

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